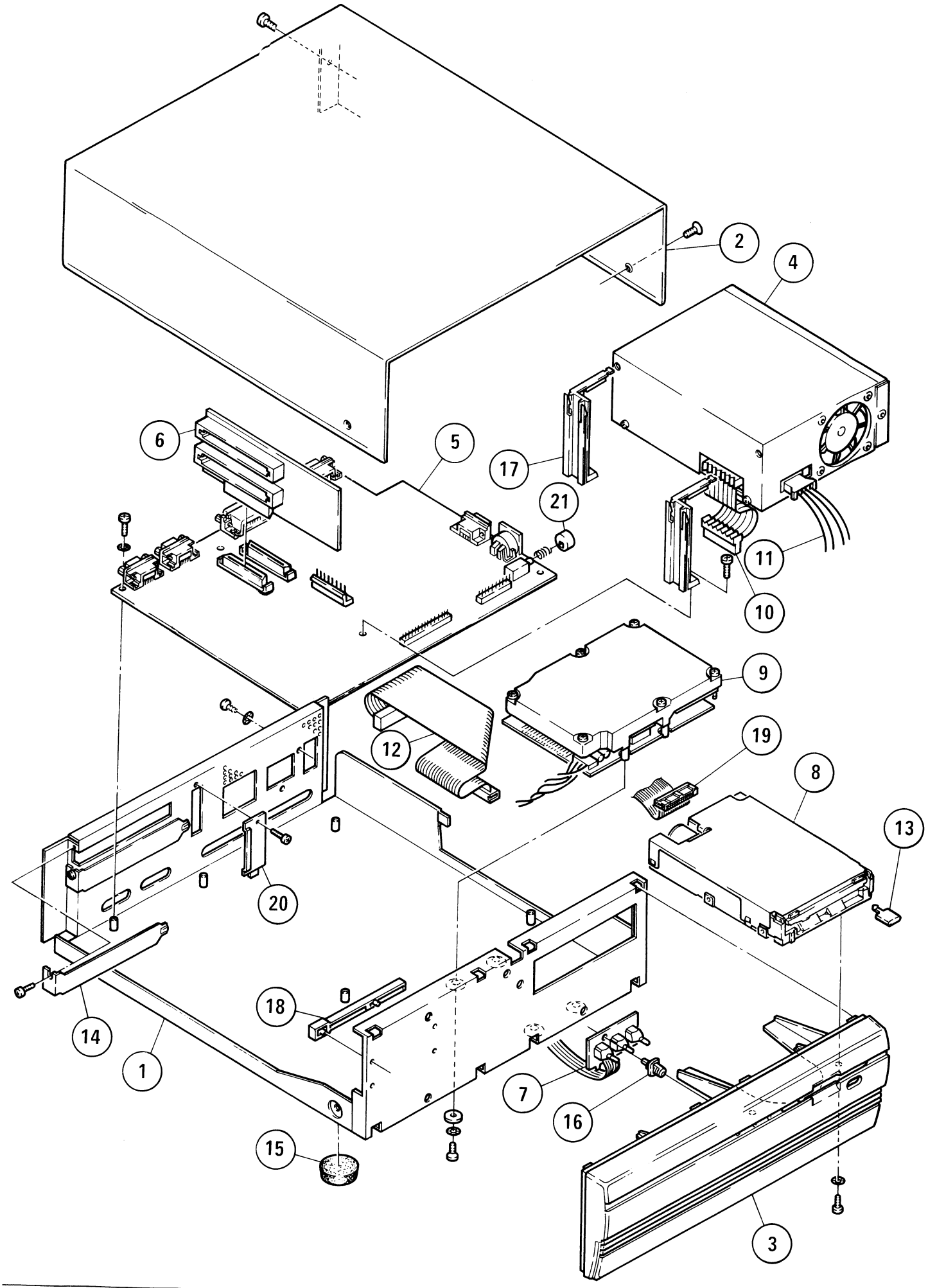
Kundendienst-Handbuch
Service Manual

Schneider

SYSTEMEINHEIT
EURO AT

Ident-Nr.: 43490

Exploded view



Ersatzteilliste für Euro AT
Parts List for Euro AT

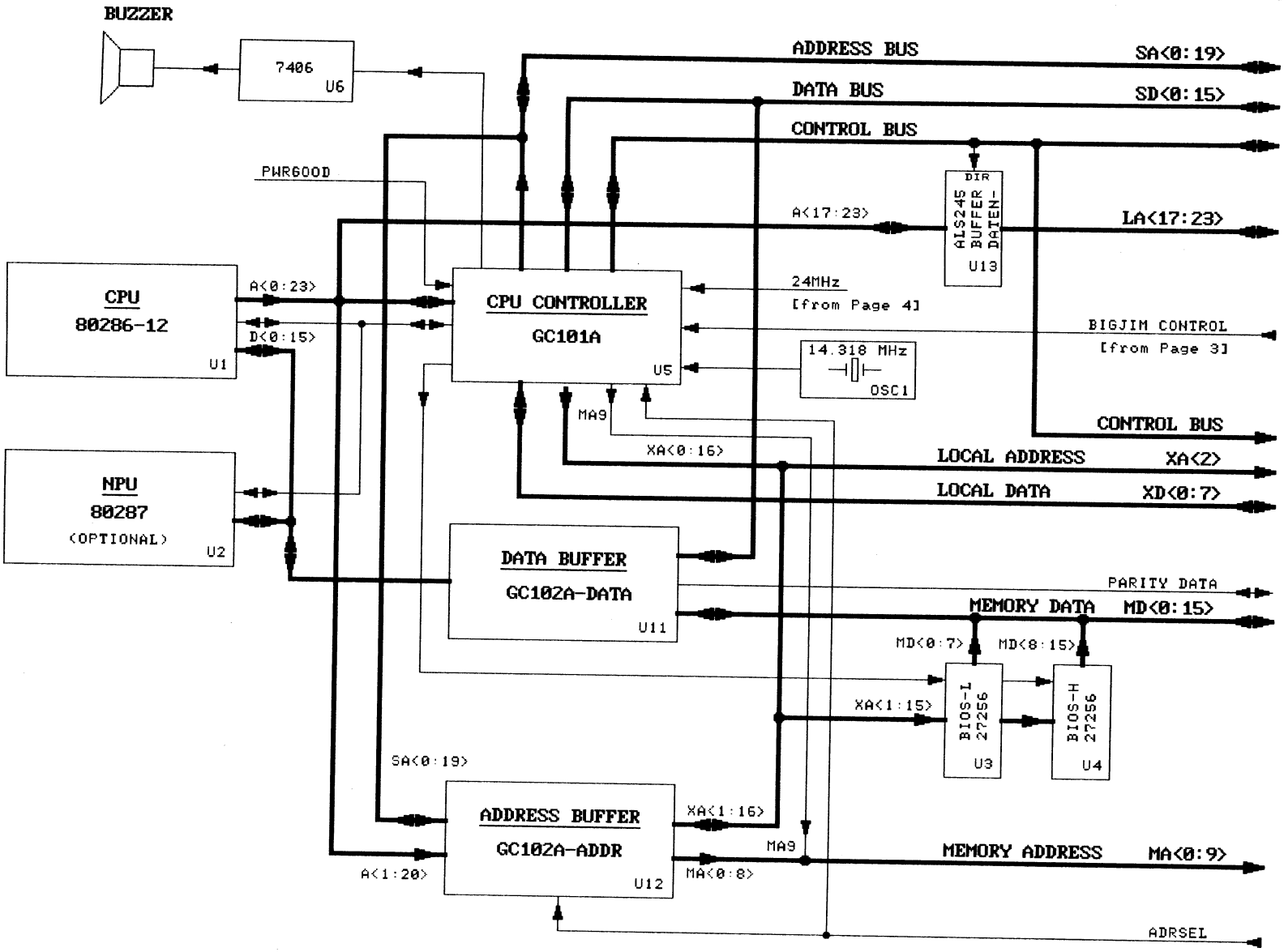
Best.-Nr. Part.-No.	Bezeichnung	Description	Zeich.-Pos. Ref.-No.	Preisgruppe
51 451 00	Styropor Euro XT/AT	Polyfoam		C 1
51 452 00	Faltkarton Euro XT/AT	Gift box		C 0
51 254 00	Gehäuseunterteil	Cabinet, bottom	1	D 4
51 257 00	Gehäuseoberteil	Cabinet, top	2	D 2
51 462 00	Frontblende	Front, mask	3	C 3
51 467 00	Netzteil Euro XT	Power supply	4	F 9
51 513 00	Platine CPU	P.C.B. CPU	5	*
51 620 00	Platine Steckplatz	P.C.B. slot	6	D 8
52 122 00	Platine LED	P.C.B. LED	7	C 2
50 021 00	Floppylaufwerk	Floppy disk drive	8	G 7
51 550 00	HD-Laufwerk	Hard disk drive	9	J 2
51 430 00	Verbindungskabel, Netz-CPU	Cabel, connection	10	B 3
51 458 00	Adapterkabel HD 4pol.	Cabel, adapter	11	B 4
51 444 00	HD-Kabel	Cabel, HDD	12	C 0
50 056 00	Druckknopf für FDD (Toshiba)	Pushbutton, FDD (Toshiba)	13	A 5
50 294 00	Druckknopf für FDD (Sony)	Pushbutton, FDD (Sony)	13	A 5
50 020 00	Blindblech	Plate, blind	14	A 7
51 456 00	Gehäusefuß	Leg, cabinet	15	A 4
51 457 00	Platinenhalter	Holder	16	A 3
51 262 00	Führungsschiene Steckplatz	Guide rail, slot	17	A 6
50 865 00	Führungsschiene Steckkarte	Guide rail, socket card	18	A 6
51 443 00	Kabelbaum FDD	Cord, FDD	19	B 6
51 266 00	Abdeckung	Cover	20	A 5
51 630 00	Druckknopf RESET	Pushbutton, RESET	21	A 6
51 750 00	Tastatur (D)	Keyboard (D)		F 6
51 751 00	Tastatur (GB)	Keyboard (GB)		F 6
51 752 00	Tastatur (F) Dual	Keyboard (F) Dual		F 6
51 753 00	Tastatur (F)	Keyboard (F)		F 6
51 754 00	Tastatur (E)	Keyboard (E)		F 6
51 755 00	Tastatur (CH)	Keyboard (CH)		F 6
51 756 00	Tastatur (DK)	Keyboard (DK)		F 6
51 757 00	Tastatur (I)	Keyboard (I)		F 6
51 758 00	Tastatur (N)	Keyboard (N)		F 6
51 759 00	Tastatur (S/SF)	Keyboard (S/SF)		F 6
51 760 00	Tastatur (P)	Keyboard (P)		F 6
51 761 00	Tastatur (GR)	Keyboard (GR)		F 6

Note: All spare parts with countryindex are reserved for foreign distributors only.

All 3.5″ and 5.25″ floppydisks must be replaced by new ones. Schneider passes no exchange price to the distributor or dealer.

* Preis auf Anfrage

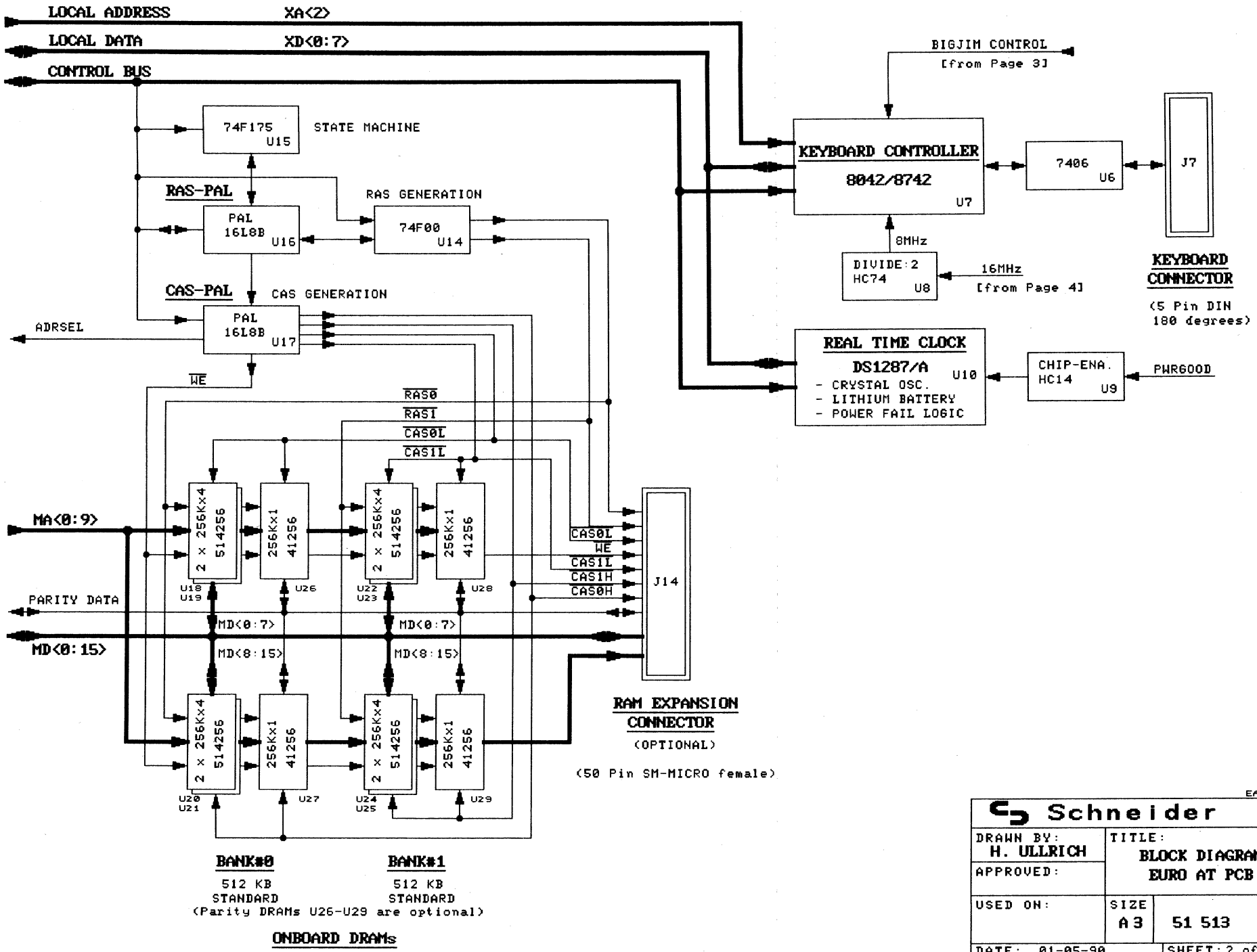
* Please call for price



EAT_BLK1

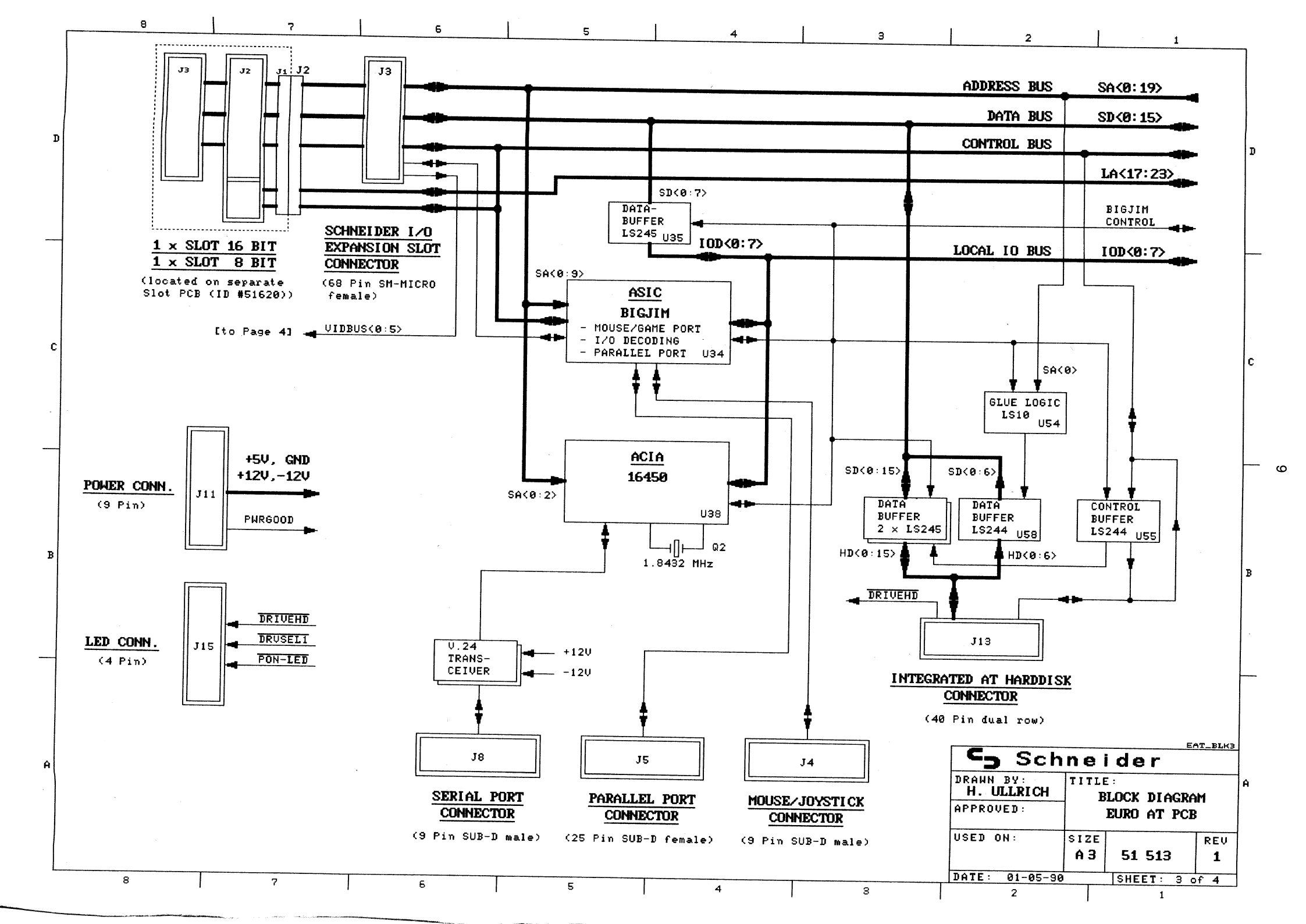
Schneider

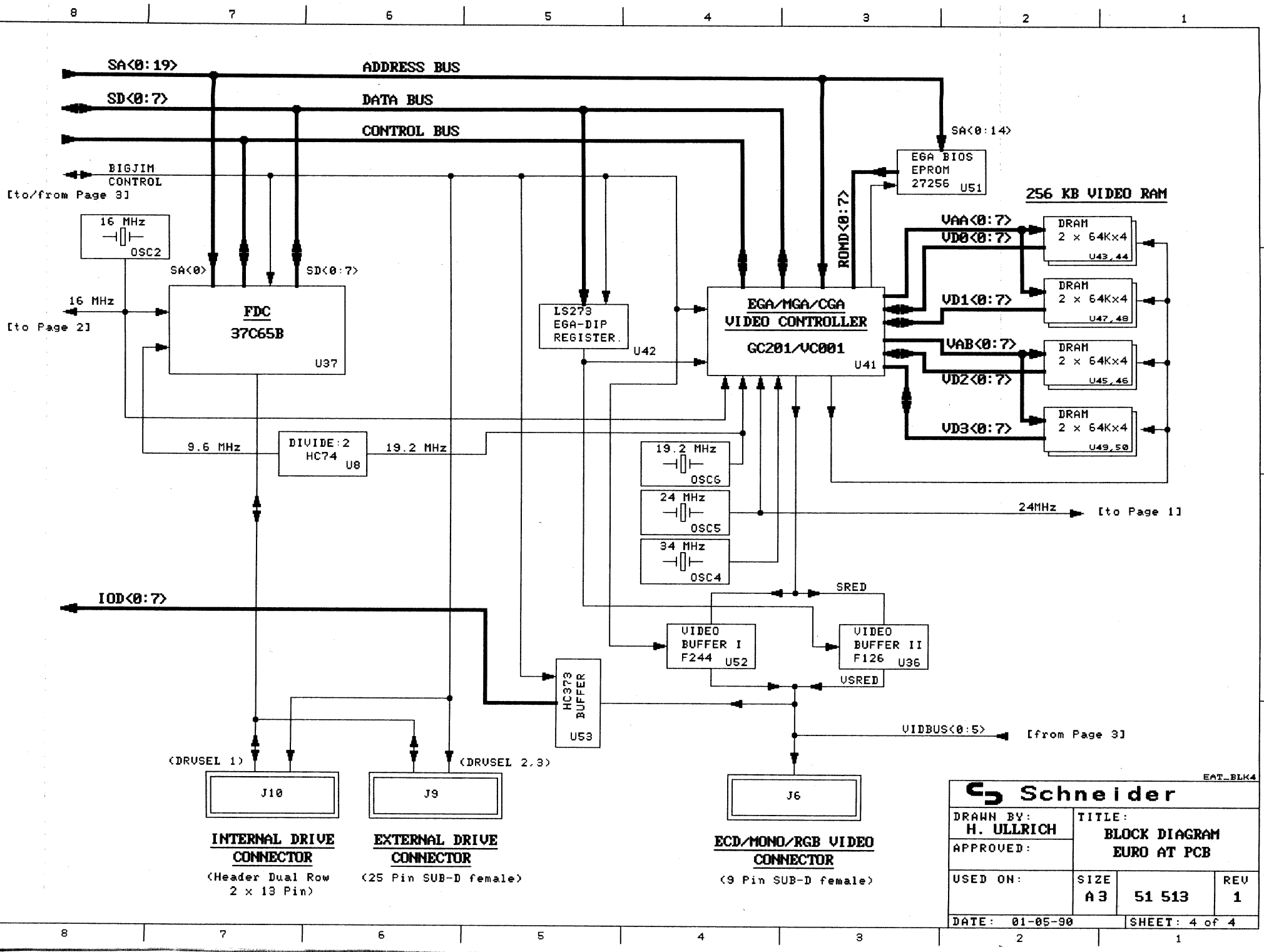
DRAWN BY: H. ULLRICH	TITLE: BLOCK DIAGRAM EURO AT PCB		
APPROVED:			
USED ON:	SIZE A3	51 513	REV 1
DATE: 01-05-90	SHEET: 1 of 4		



EAT_BLK2

Schneider			
DRAWN BY: H. ULLRICH	TITLE: BLOCK DIAGRAM EURO AT PCB		
APPROVED:			
USED ON:	SIZE A3	51 513	REV 1
DATE: 01-05-90	SHEET: 2 of 4		


J3
J2
J1
J2
J3
ADDRESS BUS
SA<0:19>
DATA BUS
SD<0:15>
CONTROL BUS
LA<17:23>
SD<0:7>
DATA-
BUFFER
LS245 U35
BIGJIM
CONTROL
IOD<0:7>
LOCAL IO BUS
IOD<0:7>
1 x SLOT 16 BIT
1 x SLOT 8 BIT
(located on separate
Slot PCB (ID #51620))
SCHNEIDER I/O
EXPANSION SLOT
CONNECTOR
(68 Pin SM-MICRO
female)
SA<0:9>
ASIC
BIGJIM
- MOUSE/GAME PORT
- I/O DECODING
- PARALLEL PORT U34
[to Page 4]
VIDBUS<0:5>
SA<0>
GLUE LOGIC
LS10
U54
ACIA
16450
U38
SA<0:2>
Q2
1.8432 MHz
SD<0:15>
SD<0:6>
DATA
BUFFER
2 x LS245
DATA
BUFFER
LS244 U58
CONTROL
BUFFER
LS244 U55
HD<0:15>
HD<0:6>
DRIVEHD
POWER CONN.
(9 Pin)
J11
+5V, GND
+12V,-12V
PWRGOOD
LED CONN.
(4 Pin)
J15
DRIVEHD
DRUSELI
PON-LED
V.24
TRANS-
CEIVER
+12V
-12V
J13
INTEGRATED AT HARDDISK
CONNECTOR
(40 Pin dual row)
J8
J5
J4
SERIAL PORT
CONNECTOR
(9 Pin SUB-D male)
PARALLEL PORT
CONNECTOR
(25 Pin SUB-D female)
MOUSE/JOYSTICK
CONNECTOR
(9 Pin SUB-D male)
EAT_BLK3
Schneider
DRAWN BY:
H. ULLRICH
APPROVED:
TITLE:
BLOCK DIAGRAM
EURO AT PCB
USED ON:
SIZE
A3
51 513
REV
1
DATE: 01-05-90
SHEET: 3 of 4



EAT_BLK4

Schneider

DRAWN BY: H. ULLRICH	TITLE: BLOCK DIAGRAM EURO AT PCB		
APPROVED:			
USED ON:	SIZE A3	51 513	REV 1
DATE: 01-05-90	SHEET: 4 of 4		

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
5	PCB REVISION 1	12-07-89	
6	PCB REVISION 1A, OSC1 REPLACES Q1	12-07-89	K. WINZEK
7	PCB REV.1B, C202 NOT USED	01-12-90	K. WINZEK

DRAWING FILES:	CONTENTS:
EAT_71.DWG	THIS SHEET
EAT_72.DWG	CPU SECTION
EAT_73.DWG	BIOS EPROMS
EAT_74.DWG	GC 101 A
EAT_75.DWG	KEYBOARD / CLOCK
EAT_76.DWG	REAL TIME CLOCK / SPKR
EAT_77.DWG	ADDRESS / DATA BUFFERS
EAT_78.DWG	TIMING FOR MEMORY
EAT_79.DWG	MEMORY I
EAT_710.DWG	MEMORY II
EAT_711.DWG	BIGJIM
EAT_712.DWG	FLOPPY INTERFACE
EAT_713.DWG	SERIAL INTERFACE
EAT_714.DWG	VIDEO CONTROLLER
EAT_715.DWG	VIDEO MEMORY
EAT_716.DWG	VIDEO INTERFACE
EAT_717.DWG	AT HARD DISK INTERFACE
EAT_718.DWG	SLOT PCB CONNECTOR

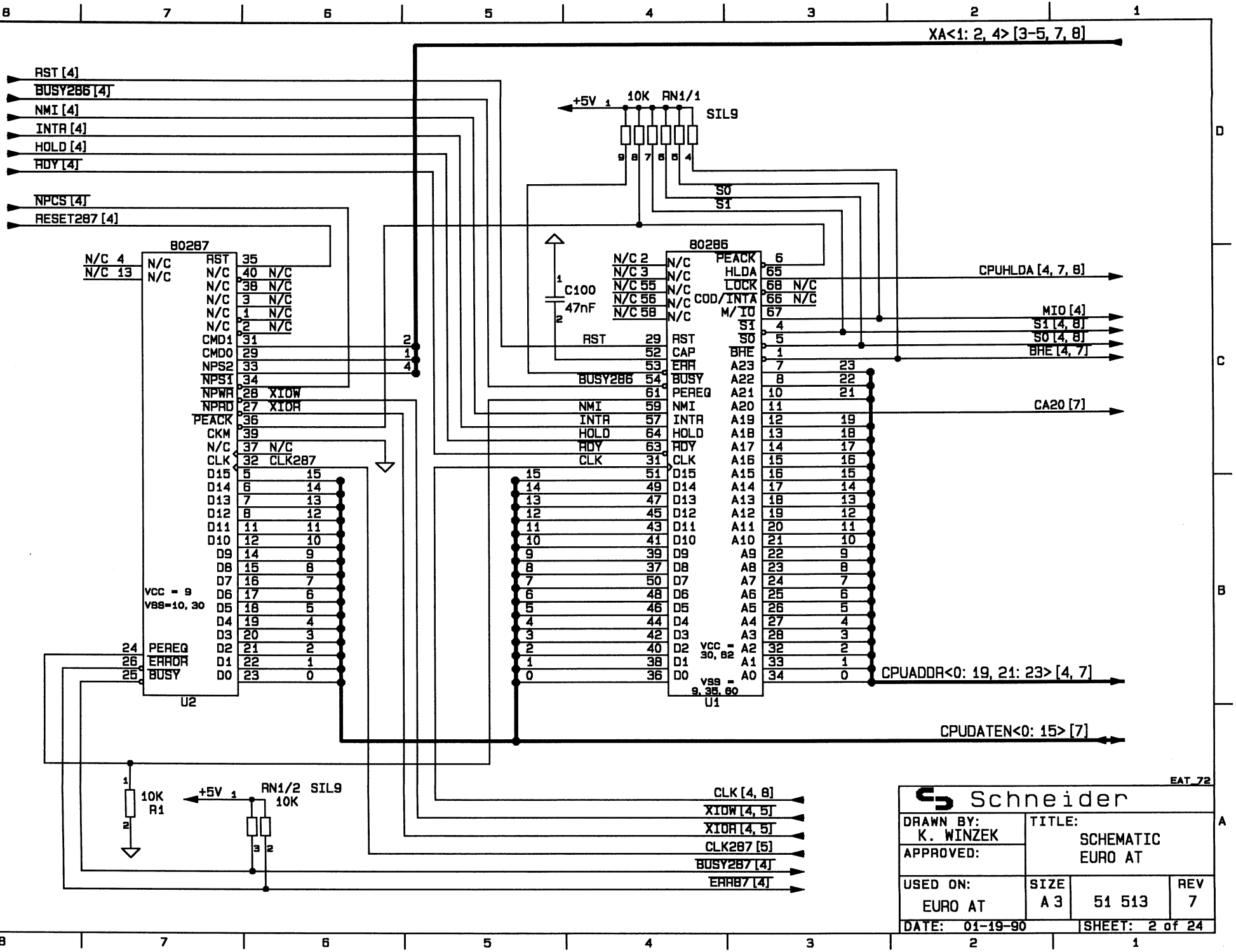
DRAWING FILES:	CONTENTS:
EAT_719.DWG	SCHNEIDER EXTENSION CONNECTOR
EAT_720.DWG	ANALOG JOYSTICK / CONNECTORS I
EAT_721.DWG	CONNECTORS II
EAT_722.DWG	CONNECTORS III
EAT_723.DWG	CONNECTORS IV
EAT_724.DWG	BLOCK CAPS.

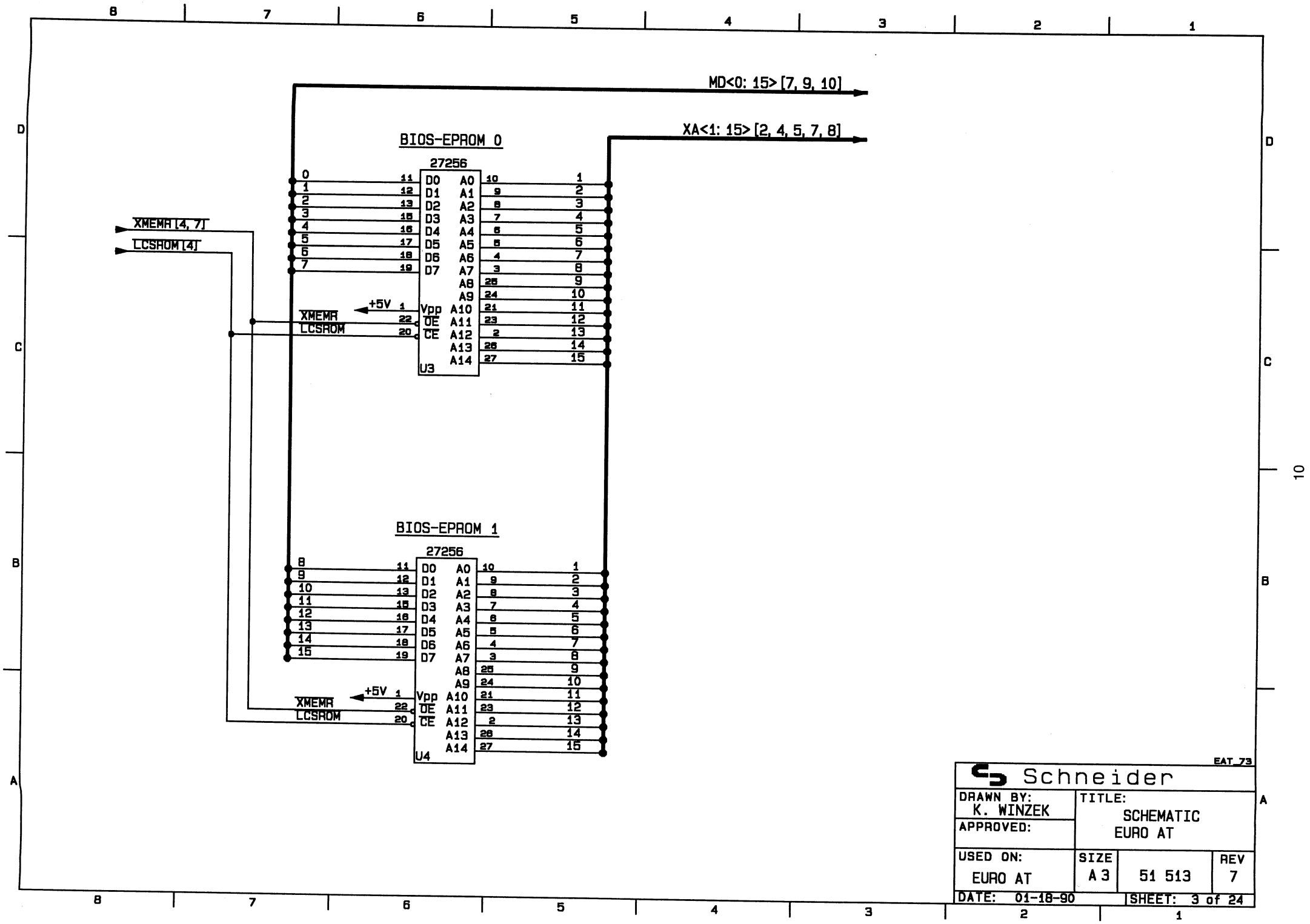
EAT_71

Schneider

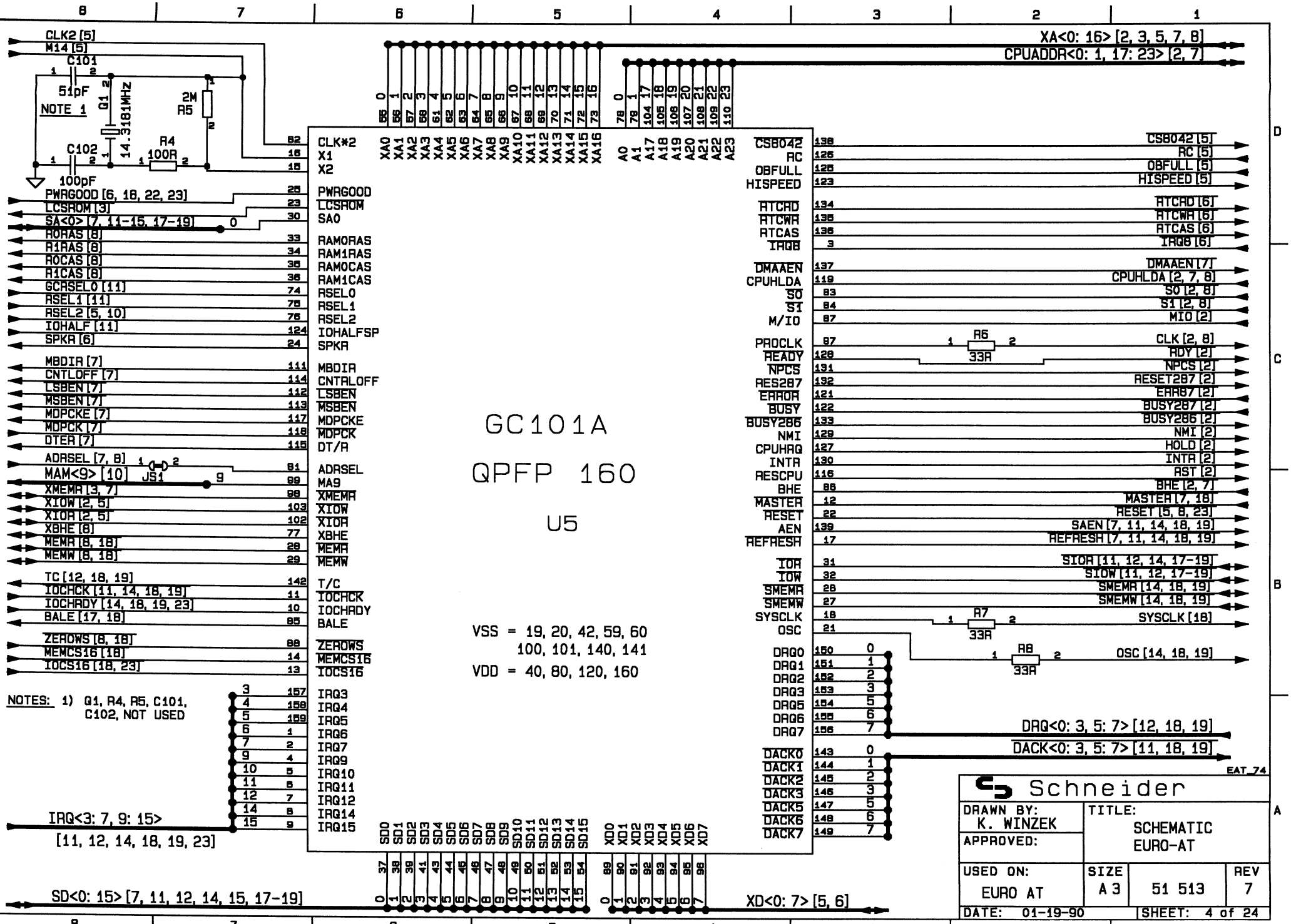
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A 3	51 513	REV 7
DATE: 01-19-90		SHEET: 1 of 24	

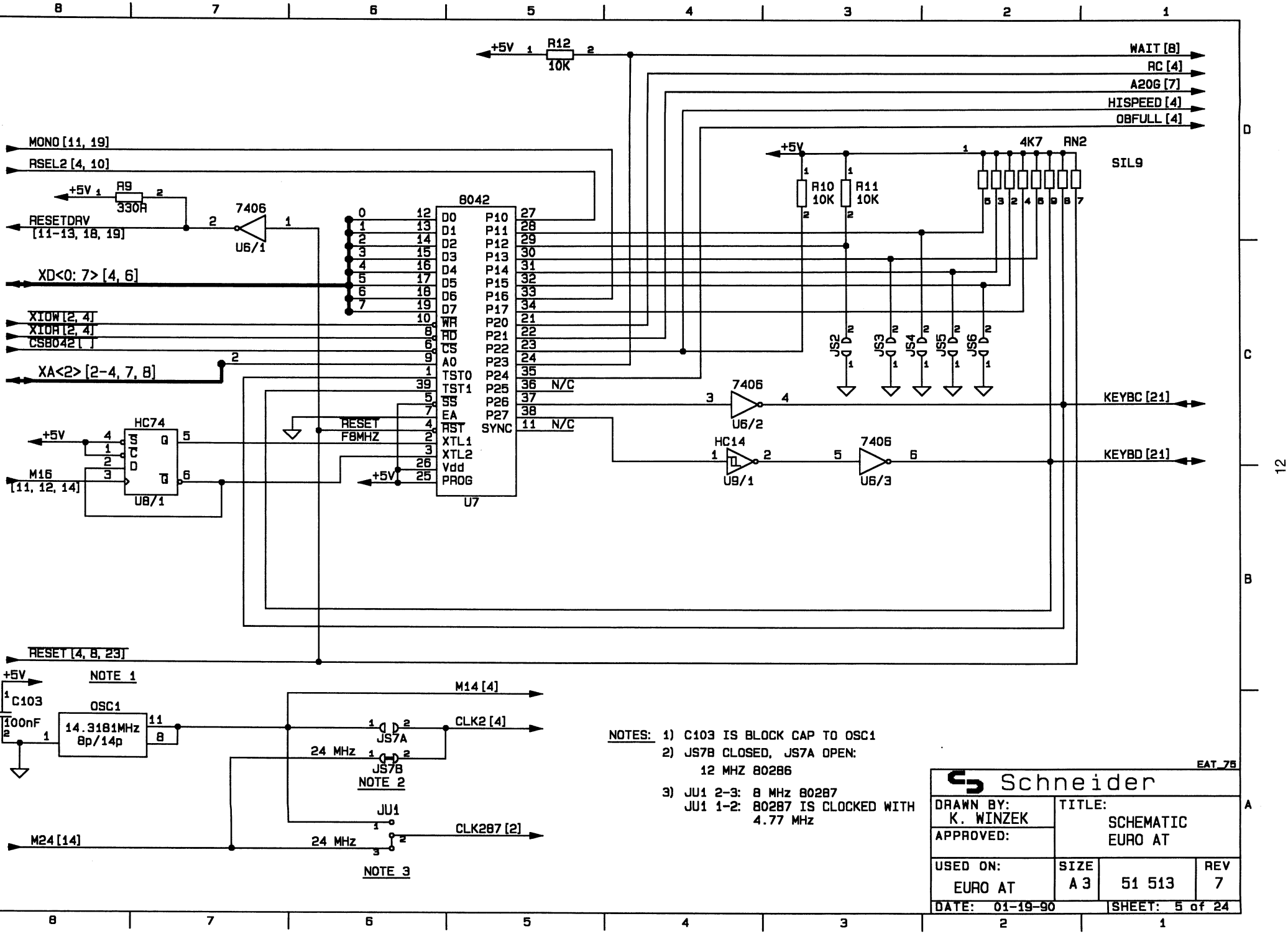
8


XA<1: 2, 4> [3-5, 7, 8]
RST [4]
BUSY286 [4]
NMI [4]
INTR [4]
HOLD [4]
RDY [4]
NPCS [4]
RESET287 [4]
+5V
10K RN1/1
SIL9
S0
S1
80287
80286
C100
47nF
CPUHLDA [4, 7, 8]
MIO [4]
S1 [4, 8]
S0 [4, 8]
BHE [4, 7]
CA20 [7]
CPUADDR<0: 19, 21: 23> [4, 7]
CPUDATEN<0: 15> [7]
VCC = 9
VSS=10, 30
VCC = 30, 82
VSS = 9, 35, 60
U2
U1
10K
R1
RN1/2 SIL9
10K
CLK [4, 8]
XIOW [4, 5]
XIOR [4, 5]
CLK287 [5]
BUSY287 [4]
ERR87 [4]
EAT_72
Schneider
DRAWN BY: K. WINZEK
APPROVED:
TITLE: SCHEMATIC EURO AT
USED ON: EURO AT
SIZE A3
51 513
REV 7
DATE: 01-19-90
SHEET: 2 of 24



Schneider			EAT_73
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A3	51 513	REV 7
DATE: 01-18-90		SHEET: 3 of 24	


GC101A
QPFP 160
U5
VSS = 19, 20, 42, 59, 60
100, 101, 140, 141
VDD = 40, 80, 120, 160
CLK2 [5]
M14 [5]
C101
51pF
NOTE 1
Q1
14.3181MHz
2M
R5
C102
100pF
R4
100R
XA<0: 16> [2, 3, 5, 7, 8]
CPUADDR<0: 1, 17: 23> [2, 7]
PWRGOOD [6, 18, 22, 23]
LCSROM [3]
SA<0> [7, 11-15, 17-19]
ADRSEL [7, 8]
MAM<9> [10]
JS1
TC [12, 18, 19]
IOCHCK [11, 14, 18, 19]
IOCHRDY [14, 18, 19, 23]
BALE [17, 18]
ZEROWS [8, 18]
MEMCS16 [18]
IOCS16 [18, 23]
IRQ<3: 7, 9: 15>
[11, 12, 14, 18, 19, 23]
SD<0: 15> [7, 11, 12, 14, 15, 17-19]
XD<0: 7> [5, 6]
CS8042 [5]
RC [5]
OBFULL [5]
HISPEED [5]
RTCRD [6]
RTCWR [6]
RTCAS [6]
IRQ8 [6]
DMAAEN [7]
CPUHLDA [2, 7, 8]
S0 [2, 8]
S1 [2, 8]
M/IO [2]
CLK [2, 8]
RDY [2]
NPCS [2]
RESET287 [2]
ERR87 [2]
BUSY287 [2]
BUSY286 [2]
NMI [2]
HOLD [2]
INTR [2]
AST [2]
BHE [2, 7]
MASTER [7, 18]
RESET [5, 8, 23]
SAEN [7, 11, 14, 18, 19]
REFRESH [7, 11, 14, 18, 19]
SIOR [11, 12, 14, 17-19]
SIOW [11, 12, 17-19]
SMEMR [14, 18, 19]
SMEMW [14, 18, 19]
SYSCLK [18]
OSC [14, 18, 19]
R6
33R
R7
33R
R8
33R
DRQ<0: 3, 5: 7> [12, 18, 19]
DACK<0: 3, 5: 7> [11, 18, 19]
NOTES: 1) Q1, R4, R5, C101, C102, NOT USED
EAT_74
Schneider
DRAWN BY: K. WINZEK
APPROVED:
TITLE: SCHEMATIC EURO-AT
USED ON: EURO AT
SIZE A3
51 513
REV 7
DATE: 01-19-90
SHEET: 4 of 24



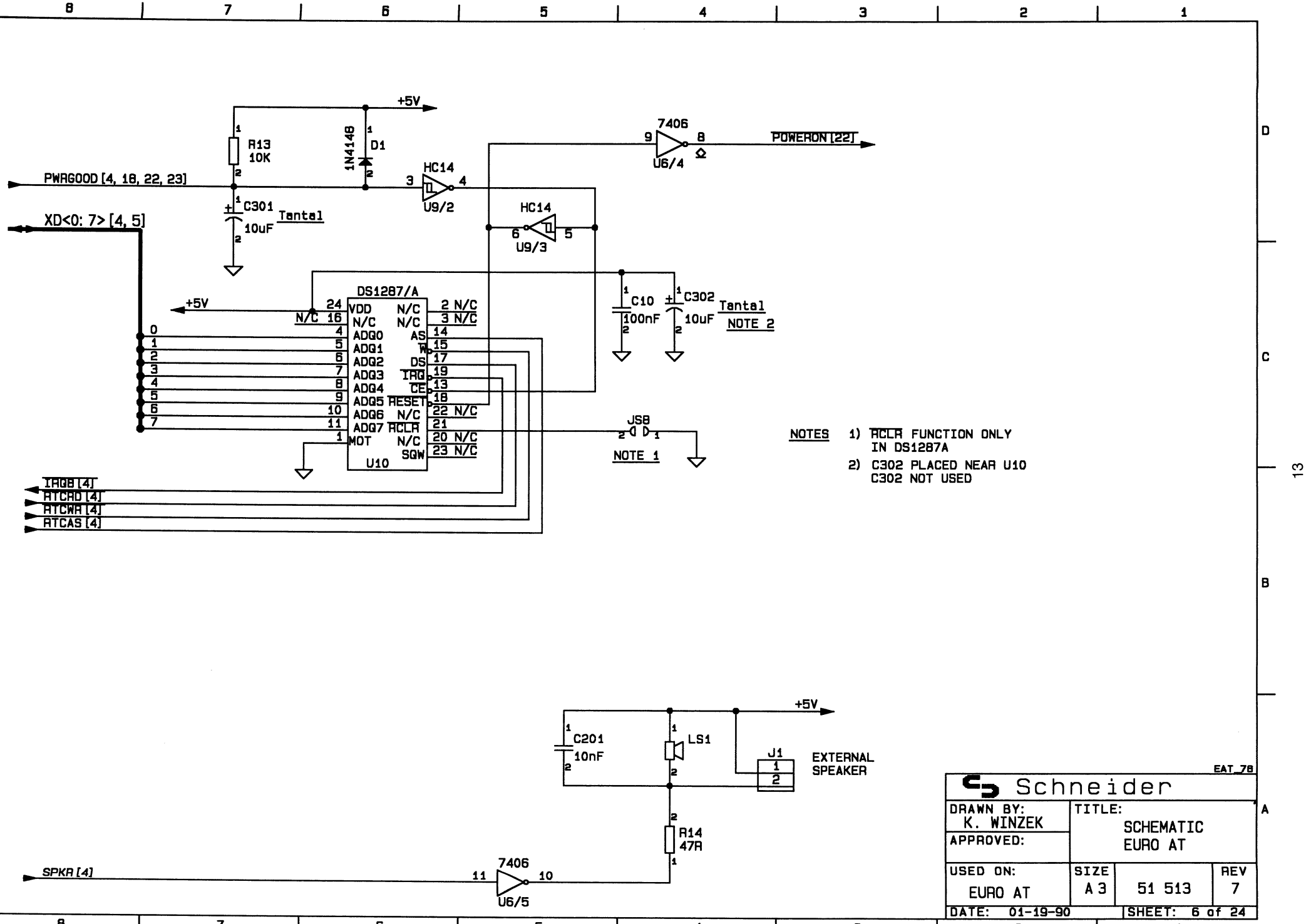
NOTES:
1) C103 IS BLOCK CAP TO OSC1
2) JS7B CLOSED, JS7A OPEN:
   12 MHZ 80286
3) JU1 2-3: 8 MHz 80287
   JU1 1-2: 80287 IS CLOCKED WITH 4.77 MHz

EAT_75

Schneider

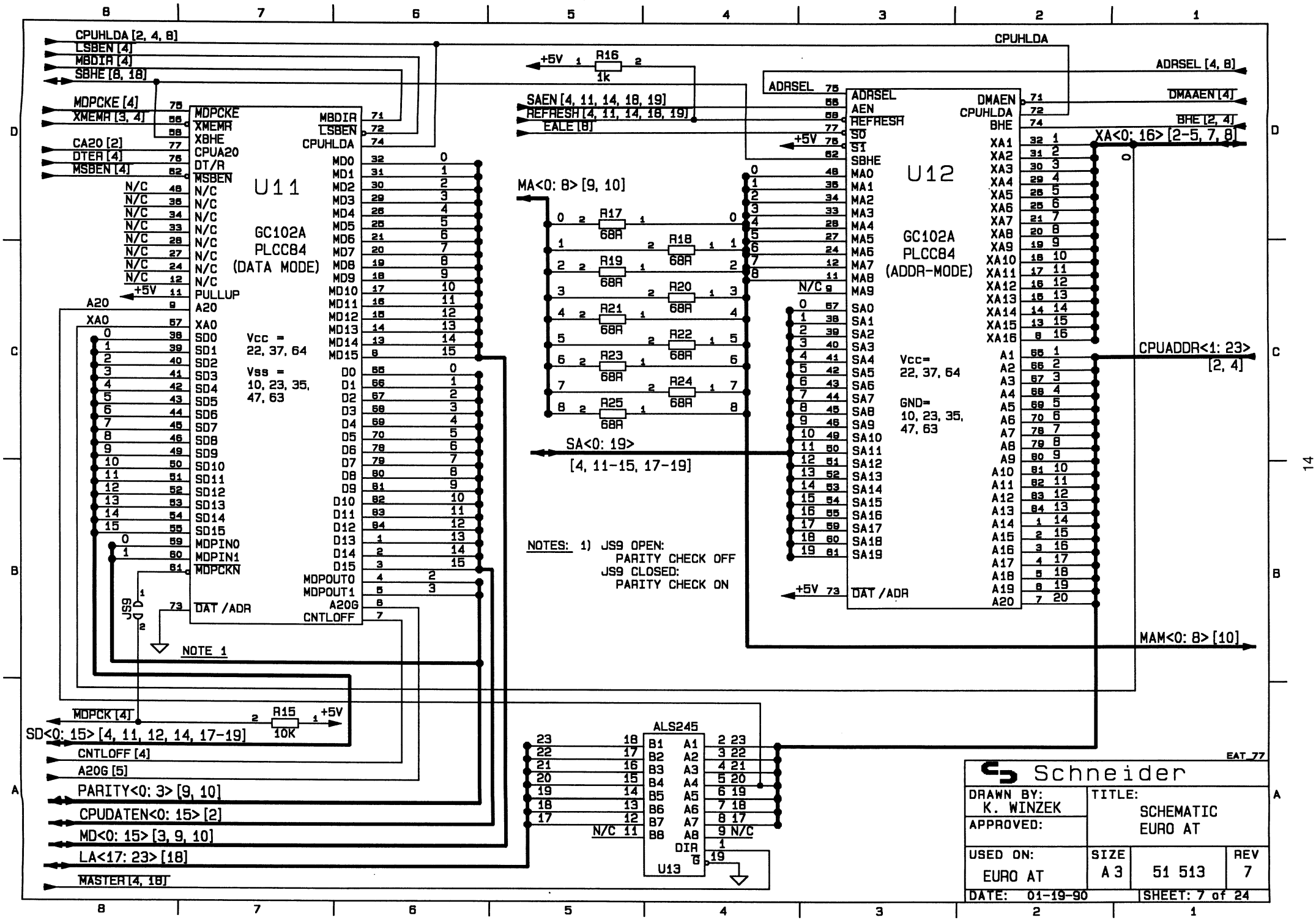
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A3	51 513	REV 7
DATE: 01-19-90	SHEET: 5 of 24		

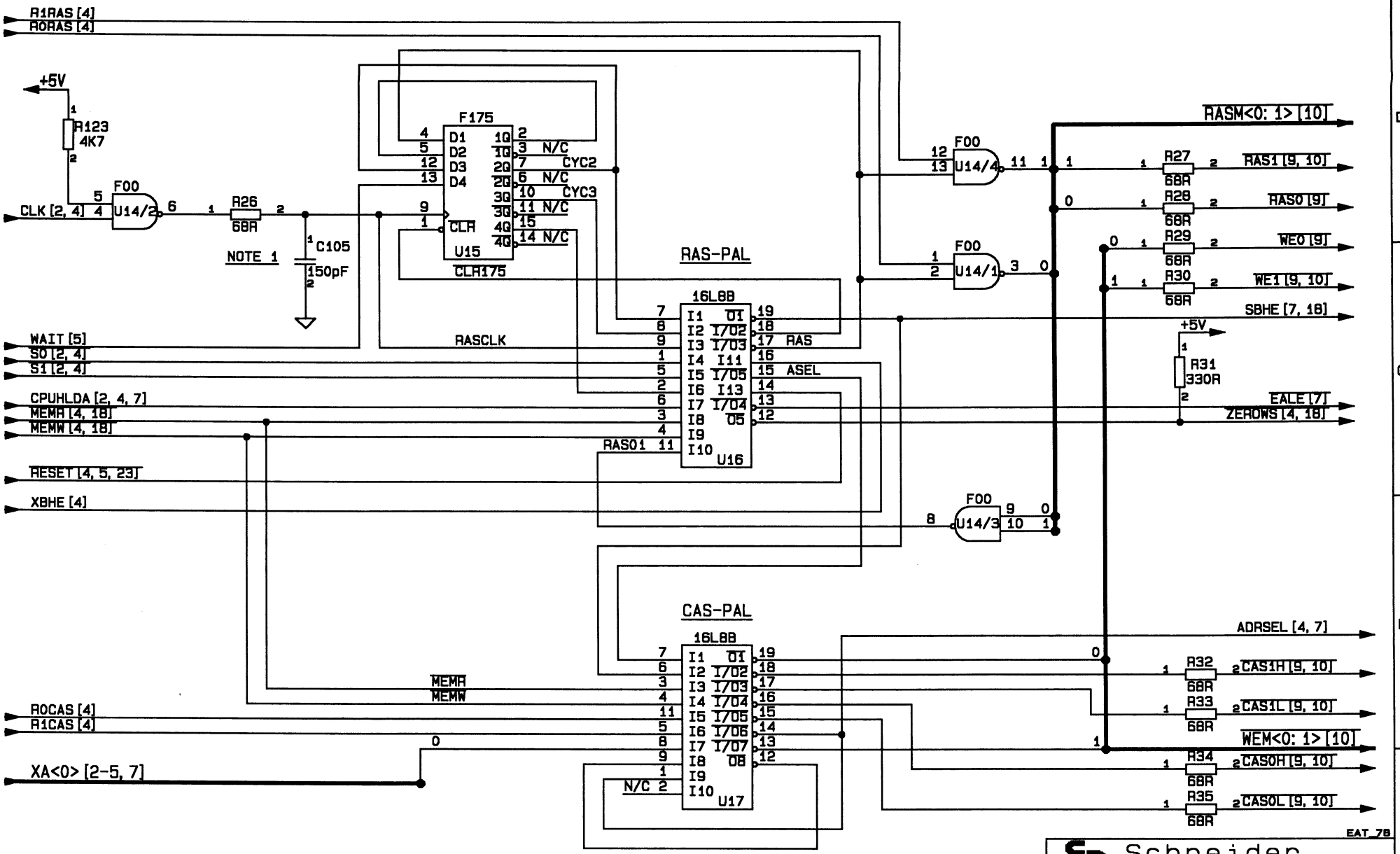
12



Schneider			EAT_78
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A3	51 513	REV 7
DATE: 01-19-90	SHEET: 6 of 24		

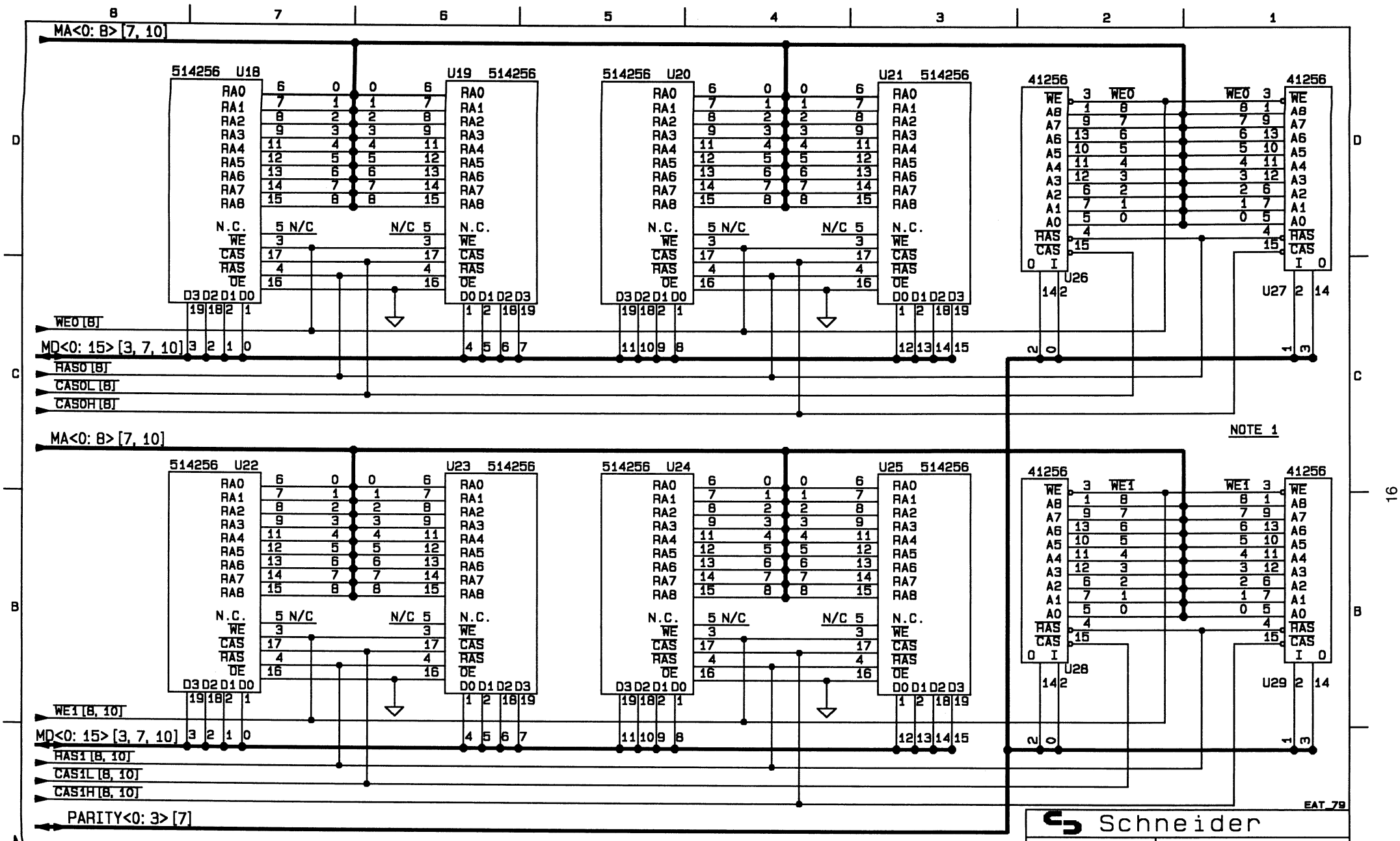
13


CPUHLDA [2, 4, 8]
LSBEN [4]
MBDIR [4]
SBHE [8, 18]
MDPCKE [4]
XMEMR [3, 4]
CA20 [2]
DTER [4]
MSBEN [4]
U11
GC102A
PLCC84
(DATA MODE)
Vcc = 22, 37, 64
Vss = 10, 23, 35, 47, 63
MDPCKE
XMEMR
XBHE
CPUA20
DT/R
MSBEN
PULLUP
A20
XA0
SD0
SD1
SD2
SD3
SD4
SD5
SD6
SD7
SD8
SD9
SD10
SD11
SD12
SD13
SD14
SD15
MDPIN0
MDPIN1
MDPCKN
DAT /ADR
MBDIR
LSBEN
CPUHLDA
MD0
MD1
MD2
MD3
MD4
MD5
MD6
MD7
MD8
MD9
MD10
MD11
MD12
MD13
MD14
MD15
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
D14
D15
MDPOUT0
MDPOUT1
A20G
CNTLOFF
JS9
NOTE 1
+5V
R16
1k
SAEN [4, 11, 14, 18, 19]
REFRESH [4, 11, 14, 18, 19]
EALE [8]
ADRSEL
AEN
REFRESH
S0
S1
SBHE
MA0
MA1
MA2
MA3
MA4
MA5
MA6
MA7
MA8
MA9
SA0
SA1
SA2
SA3
SA4
SA5
SA6
SA7
SA8
SA9
SA10
SA11
SA12
SA13
SA14
SA15
SA16
SA17
SA18
SA19
DAT /ADR
U12
GC102A
PLCC84
(ADDR-MODE)
Vcc= 22, 37, 64
GND= 10, 23, 35, 47, 63
DMAEN
CPUHLDA
BHE
XA1
XA2
XA3
XA4
XA5
XA6
XA7
XA8
XA9
XA10
XA11
XA12
XA13
XA14
XA15
XA16
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
A17
A18
A19
A20
ADRSEL [4, 8]
DMAAEN [4]
BHE [2, 4]
XA<0: 16> [2-5, 7, 8]
CPUADDR<1: 23> [2, 4]
MAM<0: 8> [10]
MA<0: 8> [9, 10]
R17
R18
R19
R20
R21
R22
R23
R24
R25
68R
SA<0: 19>
[4, 11-15, 17-19]
NOTES: 1) JS9 OPEN:
PARITY CHECK OFF
JS9 CLOSED:
PARITY CHECK ON
MDPCK [4]
R15
10K
SD<0: 15> [4, 11, 12, 14, 17-19]
CNTLOFF [4]
A20G [5]
PARITY<0: 3> [9, 10]
CPUDATEN<0: 15> [2]
MD<0: 15> [3, 9, 10]
LA<17: 23> [18]
MASTER [4, 18]
ALS245
U13
B1
B2
B3
B4
B5
B6
B7
B8
A1
A2
A3
A4
A5
A6
A7
A8
DIR
N/C
Schneider
DRAWN BY: K. WINZEK
APPROVED:
TITLE: SCHEMATIC EURO AT
USED ON: EURO AT
SIZE A 3
51 513
REV 7
DATE: 01-19-90
SHEET: 7 of 24
EAT_77



NOTES: 1) C105 NORMALLY NOT ASSEMBLED

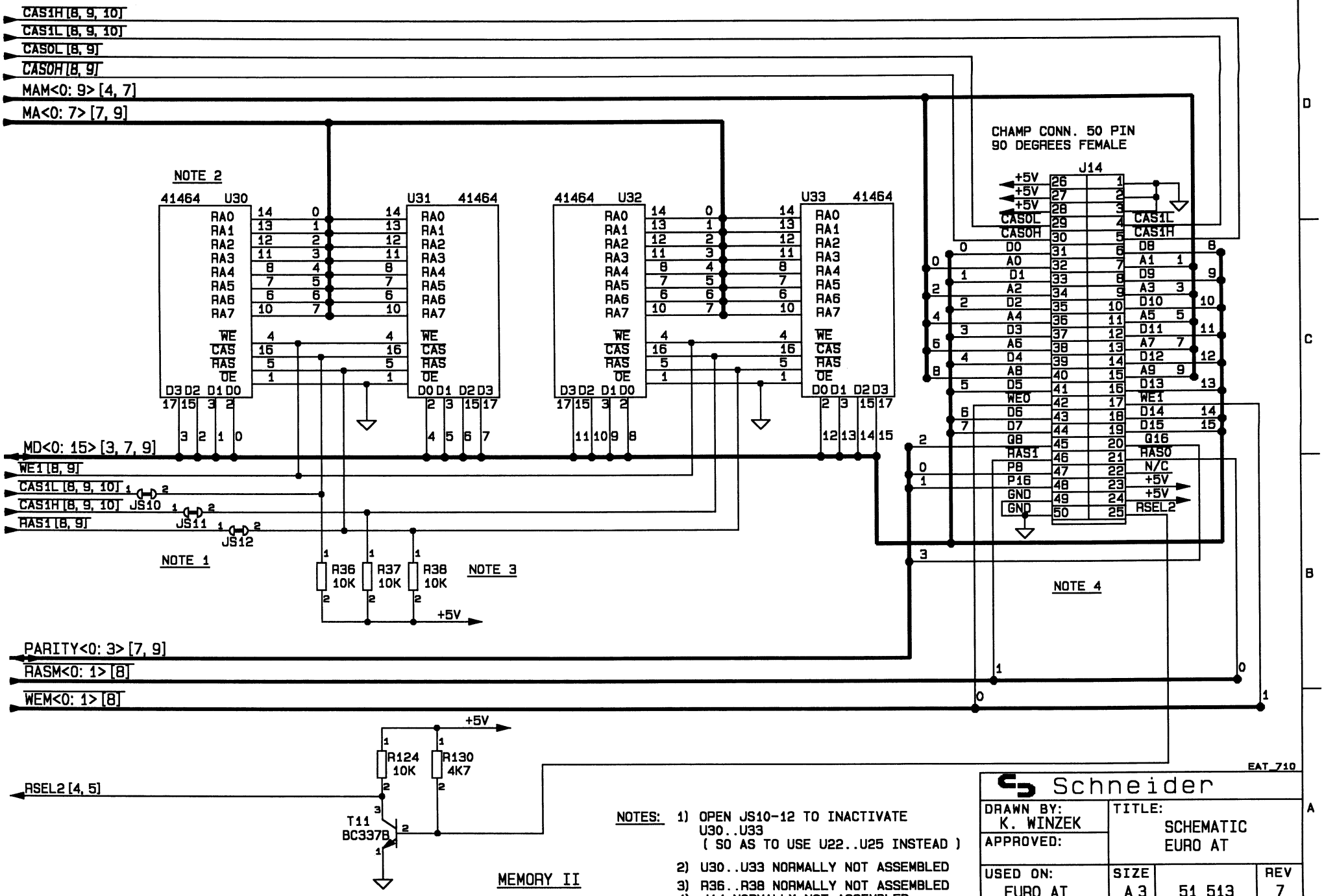
Schneider			
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A 3	51 513	REV 7
DATE: 01-18-90	SHEET: 6 of 24		



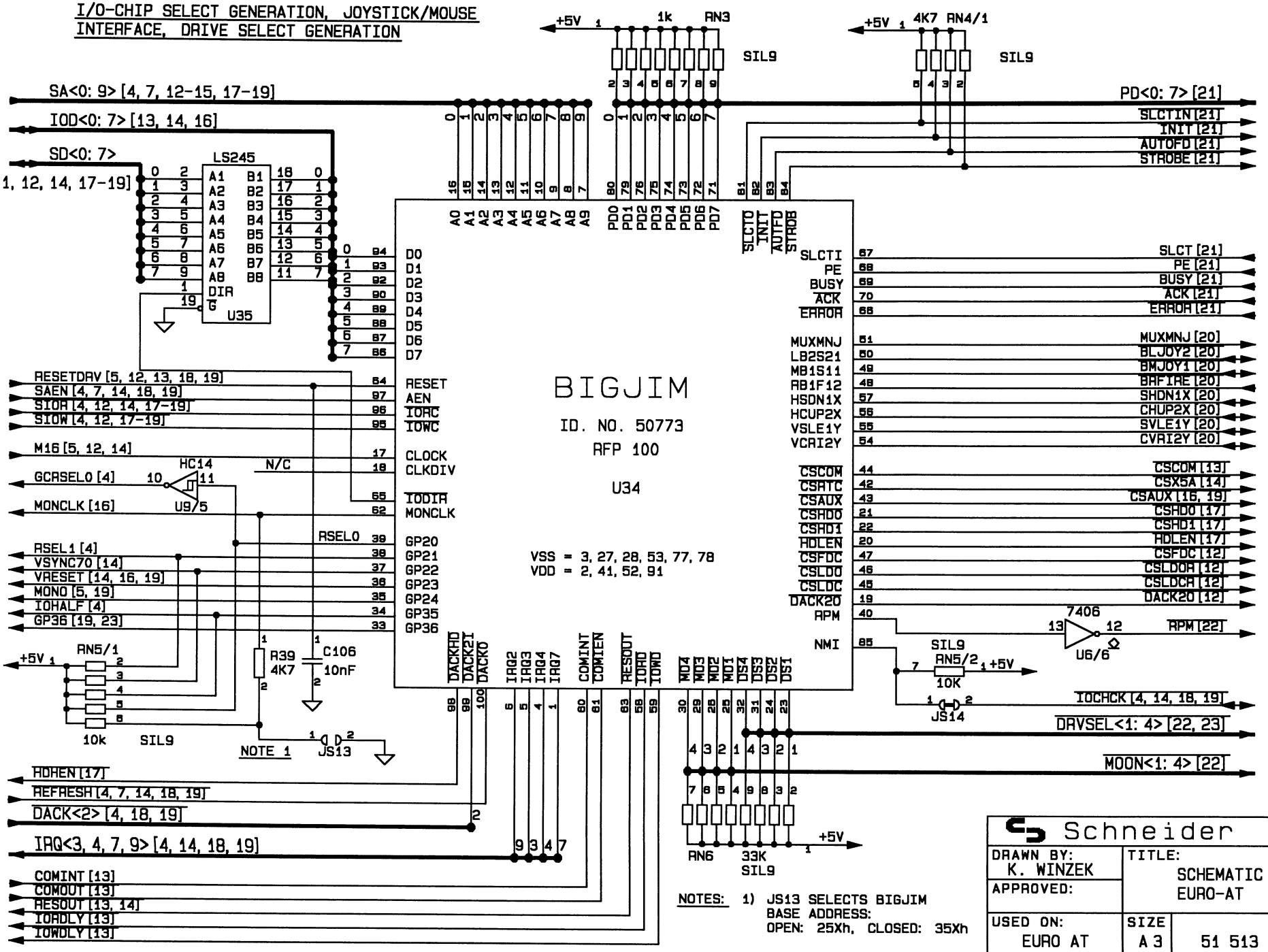
NOTES: 1) U26 .. U29 NORMALLY NOT ASSEMBLED

MEMORY I

Schneider			
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO-AT		
APPROVED:			
USED ON: EURO AT	SIZE A 3	51 513	REV 7
DATE: 01-18-90	SHEET: 9 of 24		


CAS1H [8, 9, 10]
CAS1L [8, 9, 10]
CAS0L [8, 9]
CAS0H [8, 9]
MAM<0: 9> [4, 7]
MA<0: 7> [7, 9]
NOTE 2
41464 U30
U31 41464
41464 U32
U33 41464
RA0
RA1
RA2
RA3
RA4
RA5
RA6
RA7
WE
CAS
RAS
OE
D3 D2 D1 D0
D0 D1 D2 D3
MD<0: 15> [3, 7, 9]
WE1 [8, 9]
CAS1L [8, 9, 10]
CAS1H [8, 9, 10]
RAS1 [8, 9]
JS10
JS11
JS12
NOTE 1
R36 10K
R37 10K
R38 10K
NOTE 3
+5V
CHAMP CONN. 50 PIN
90 DEGREES FEMALE
J14
+5V
CAS0L
CAS0H
D0
A0
D1
A2
D2
A4
D3
A6
D4
A8
D5
WE0
D6
D7
Q8
RAS1
P8
P16
GND
CAS1L
CAS1H
D8
A1
D9
A3
D10
A5
D11
A7
D12
A9
D13
WE1
D14
D15
Q16
RAS0
N/C
+5V
+5V
RSEL2
NOTE 4
PARITY<0: 3> [7, 9]
RASM<0: 1> [8]
WEM<0: 1> [8]
+5V
R124 10K
R130 4K7
RSEL2 [4, 5]
T11 BC337B
MEMORY II
NOTES: 1) OPEN JS10-12 TO INACTIVATE U30..U33 (SO AS TO USE U22..U25 INSTEAD)
2) U30..U33 NORMALLY NOT ASSEMBLED
3) R36..R38 NORMALLY NOT ASSEMBLED
4) J14 NORMALLY NOT ASSEMBLED
EAT 710
Schneider
DRAWN BY: K. WINZEK
APPROVED:
TITLE: SCHEMATIC EURO AT
USED ON: EURO AT
SIZE A3
51 513
REV 7
DATE: 01-25-90
SHEET: 10 of 24

I/O-CHIP SELECT GENERATION, JOYSTICK/MOUSE INTERFACE, DRIVE SELECT GENERATION



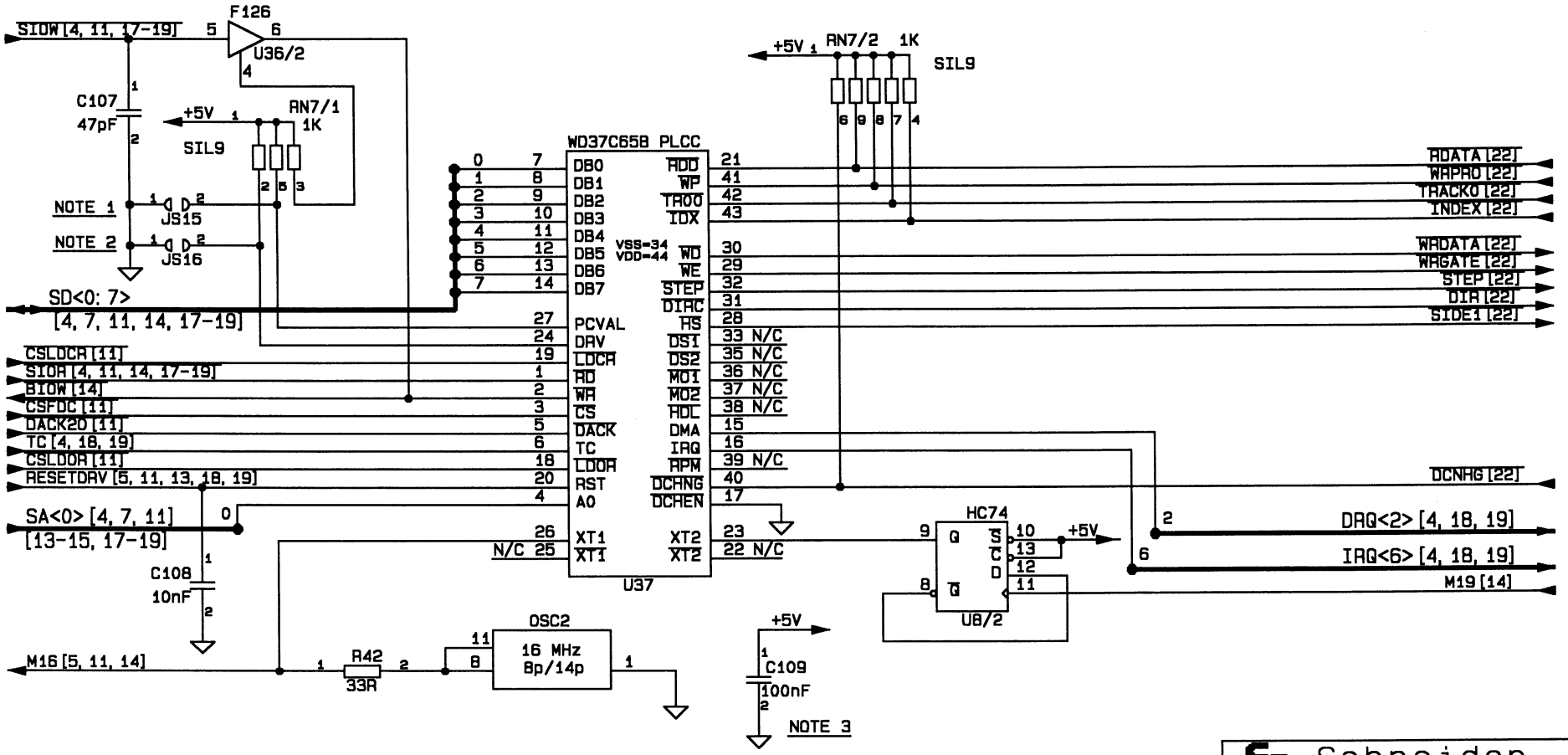
NOTES: 1) JS13 SELECTS BIGJIM BASE ADDRESS:
OPEN: 25Xh, CLOSED: 35Xh

EAT_711

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO-AT		
APPROVED:			
USED ON: EURO AT	SIZE A 3	51 513	REV 7
DATE: 01-24-90	SHEET: 11 of 24		

FLOPPY INTERFACE

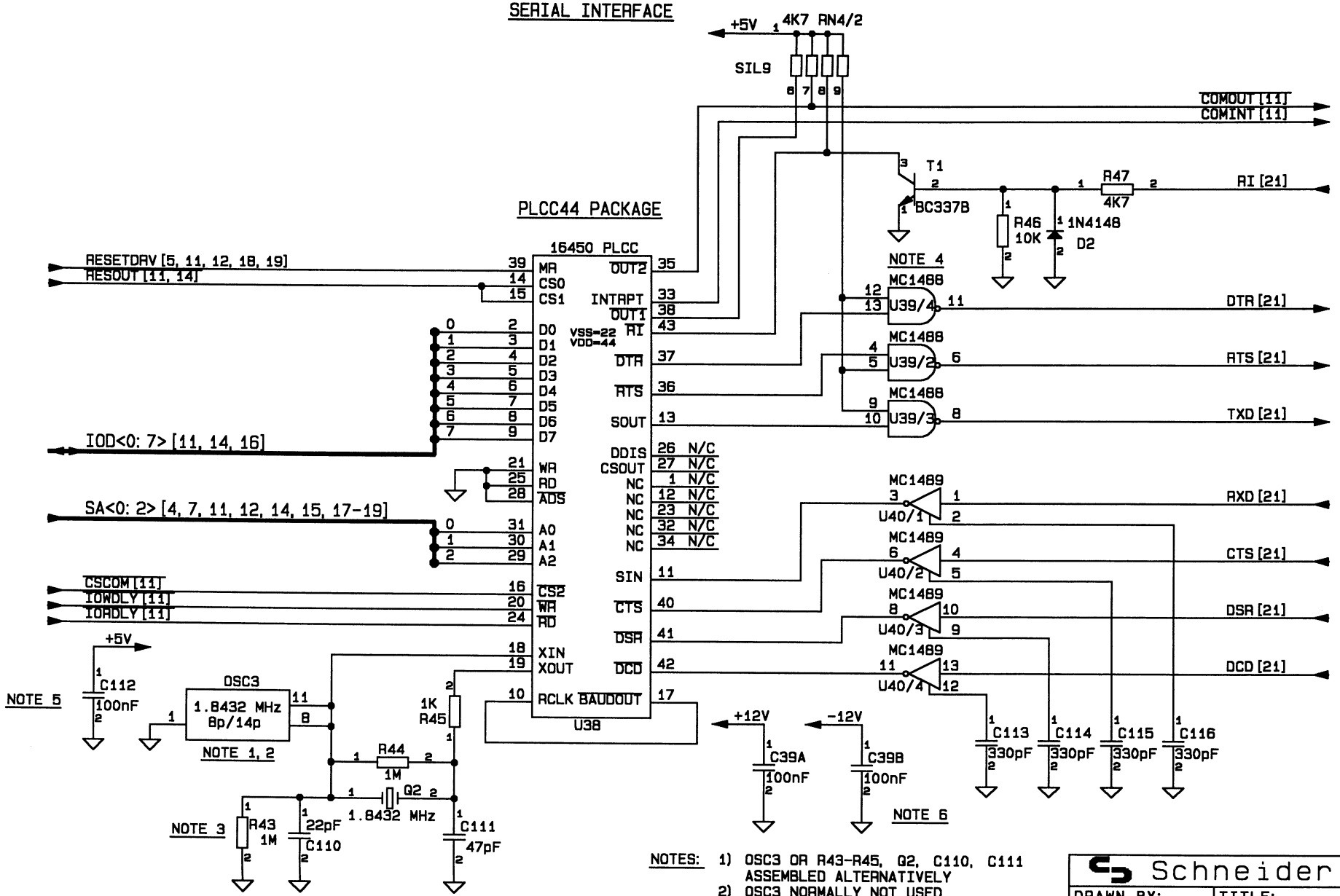


NOTES: 1) JS15 SELECTS WRITE PRECOMP. VAL.:
JS15 OPEN : 125 ns
JS15 CLOSED: 187 ns
2) JS16 SELECTS 2 SPEED SPINDLE DRIVE IF CLOSED
3) C109 IS BLOCK CAP TO OSC2

EAT 712

Schneider			
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A 3	51 513	REV 7
DATE: 01-24-90	SHEET: 12 of 24		

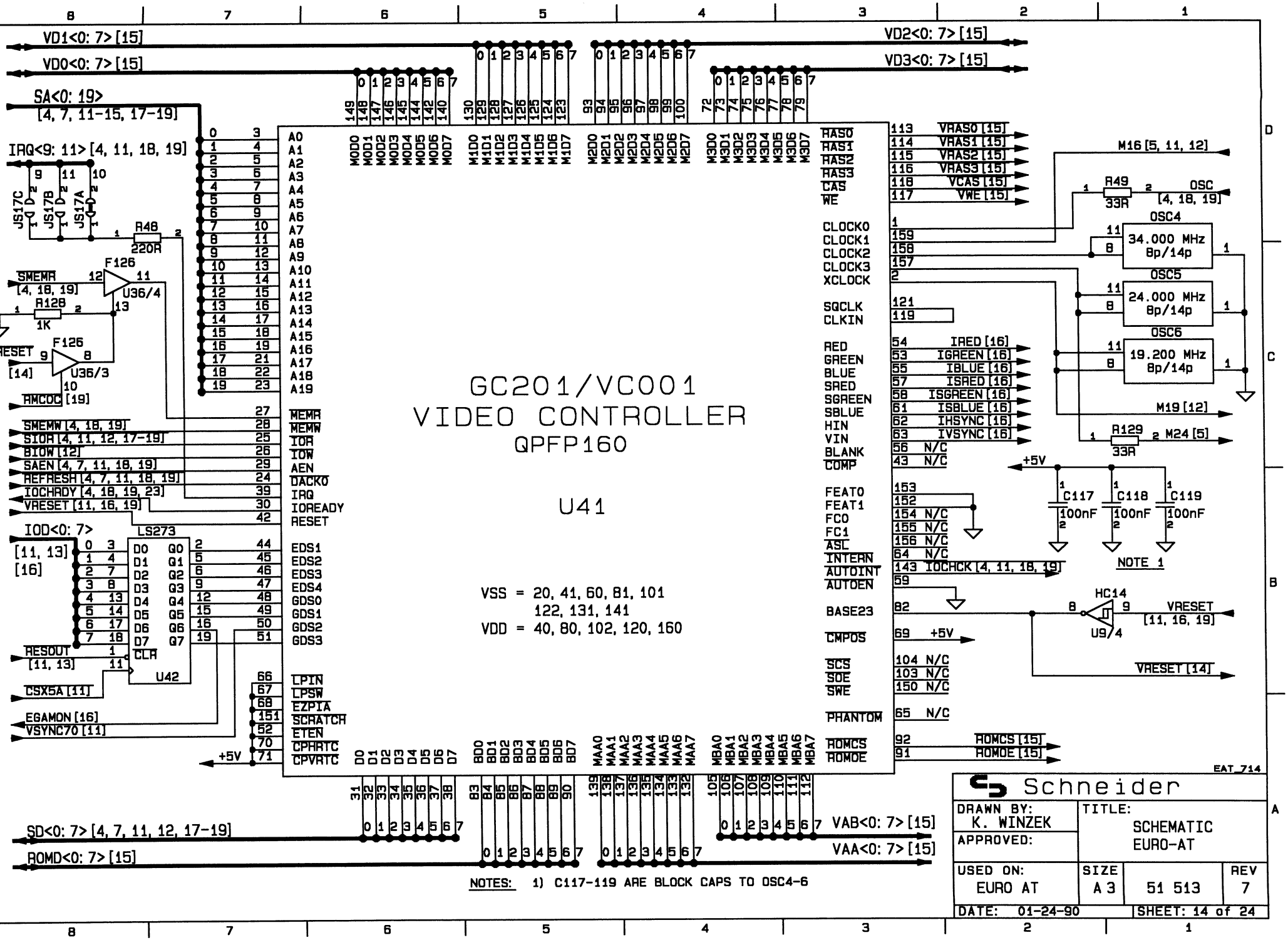
SERIAL INTERFACE

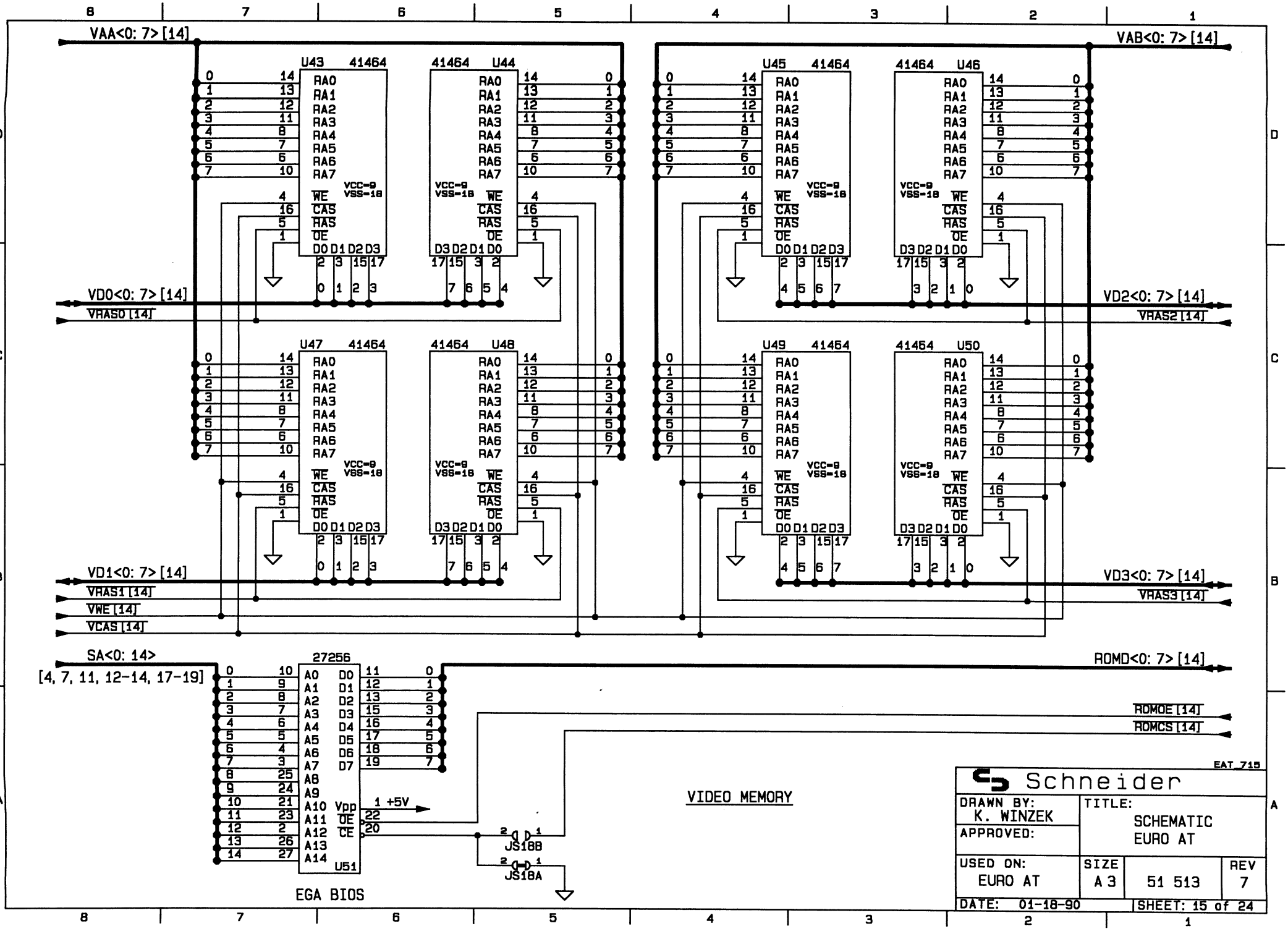


NOTES:
1) OSC3 OR R43-R45, Q2, C110, C111 ASSEMBLED ALTERNATIVELY
2) OSC3 NORMALLY NOT USED
3) R43 ASSEMBLED ONLY IF REQUIRED
4) U39 HAS SPECIAL POWER PINS:
   +12V = PIN 14
   -12V = PIN 1
   GND = PIN 7
5) C112 IS BLOCK CAP TO OSC3
6) C39A, C39B ARE BLOCK CAPS FOR U39

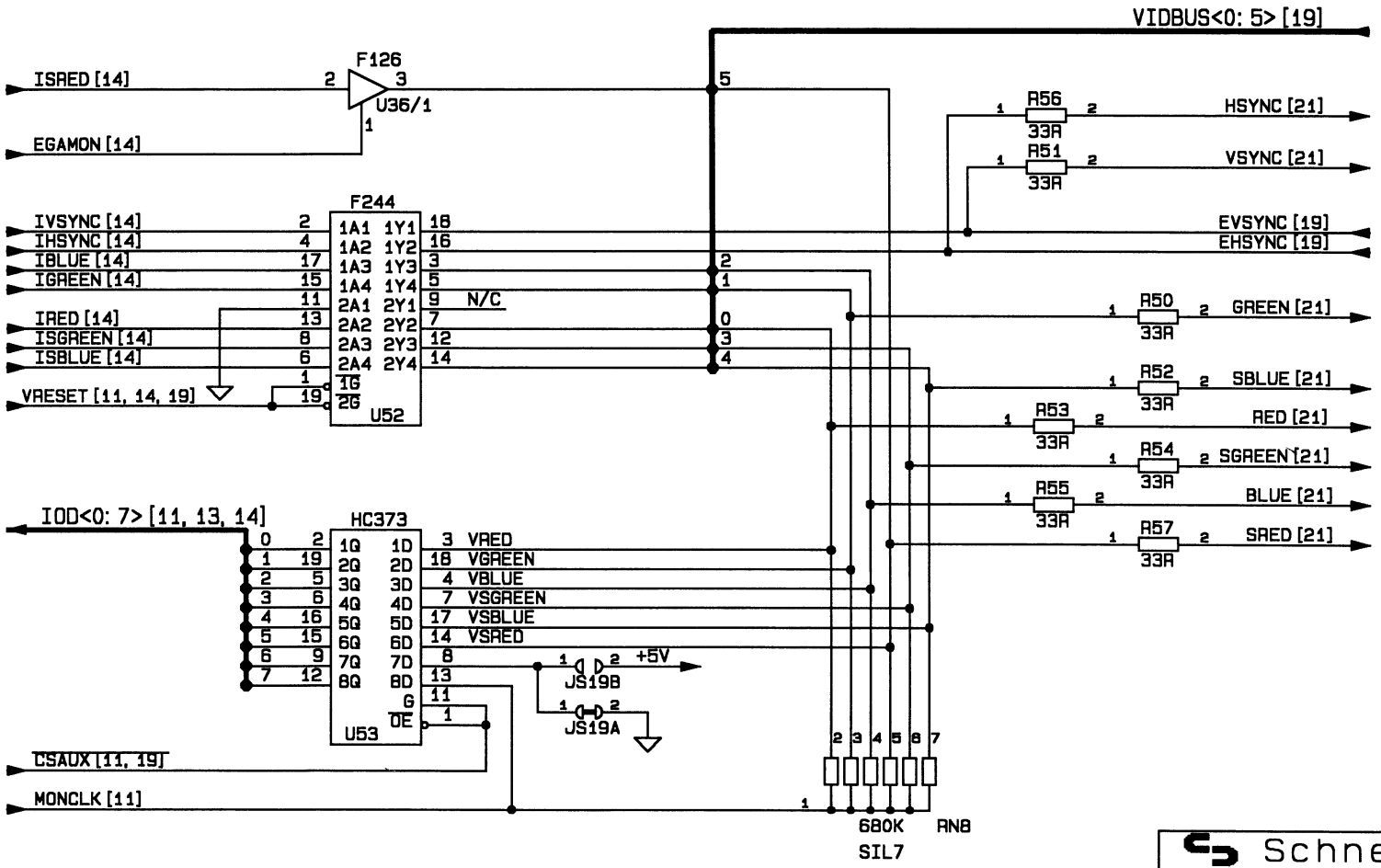
EAT_713

Schneider			
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO-AT		
APPROVED:			
USED ON: EURO AT	SIZE A 3	51 513	REV 7
DATE: 01-18-90			SHEET: 13 of 24


VD1<0: 7> [15]
VD0<0: 7> [15]
VD2<0: 7> [15]
VD3<0: 7> [15]
SA<0: 19>
[4, 7, 11-15, 17-19]
IRQ<9: 11> [4, 11, 18, 19]
JS17C
JS17B
JS17A
R48
220R
F126
SMEMR
[4, 18, 19]
U36/4
R128
1K
VRESET
[14]
U36/3
AMCOC [19]
SMEMW [4, 18, 19]
SIOR [4, 11, 12, 17-19]
BIOW [12]
SAEN [4, 7, 11, 18, 19]
REFRESH [4, 7, 11, 18, 19]
IOCHRDY [4, 18, 19, 23]
VRESET [11, 16, 19]
IOD<0: 7>
[11, 13]
[16]
LS273
U42
RESOUT
[11, 13]
CSX5A [11]
EGAMON [16]
VSYNC70 [11]
+5V
A0
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
A13
A14
A15
A16
A17
A18
A19
MEMR
MEMW
IOR
IOW
AEN
DACK0
IRQ
IOREADY
RESET
EDS1
EDS2
EDS3
EDS4
GDS0
GDS1
GDS2
GDS3
LPIN
LPSW
EZPIA
SCRATCH
ETEN
CPPRTC
CPVRTC
GC201/VC001
VIDEO CONTROLLER
QPFP160
U41
VSS = 20, 41, 60, 81, 101
122, 131, 141
VDD = 40, 80, 102, 120, 160
RAS0
RAS1
RAS2
RAS3
CAS
WE
CLOCK0
CLOCK1
CLOCK2
CLOCK3
XCLOCK
SQCLK
CLKIN
RED
GREEN
BLUE
SRED
SGREEN
SBLUE
HIN
VIN
BLANK
COMP
FEAT0
FEAT1
FC0
FC1
ASL
INTERN
AUTOINT
AUTOEN
BASE23
CMPOS
SCS
SOE
SWE
PHANTOM
ROMCS
ROMOE
VRAS0 [15]
VRAS1 [15]
VRAS2 [15]
VRAS3 [15]
VCAS [15]
VWE [15]
IRED [16]
IGREEN [16]
IBLUE [16]
ISRED [16]
ISGREEN [16]
ISBLUE [16]
IHSYNC [16]
IVSYNC [16]
N/C
IOCHCK [4, 11, 18, 19]
M16 [5, 11, 12]
R49
33R
OSC
[4, 18, 19]
OSC4
34.000 MHz
8p/14p
OSC5
24.000 MHz
8p/14p
OSC6
19.200 MHz
8p/14p
M19 [12]
R129
33R
M24 [5]
C117
C118
C119
100nF
NOTE 1
HC14
U9/4
VRESET
[11, 16, 19]
VRESET [14]
ROMCS [15]
ROMOE [15]
EAT_714
SD<0: 7> [4, 7, 11, 12, 17-19]
ROMD<0: 7> [15]
VAB<0: 7> [15]
VAA<0: 7> [15]
NOTES: 1) C117-119 ARE BLOCK CAPS TO OSC4-6
Schneider
DRAWN BY: K. WINZEK
APPROVED:
TITLE: SCHEMATIC EURO-AT
USED ON: EURO AT
SIZE A 3
51 513
REV 7
DATE: 01-24-90
SHEET: 14 of 24


VAA<0: 7> [14]
VAB<0: 7> [14]
U43 41464
41464 U44
U45 41464
41464 U46
U47 41464
41464 U48
U49 41464
41464 U50
RA0
RA1
RA2
RA3
RA4
RA5
RA6
RA7
VCC=9
VSS=18
WE
CAS
RAS
OE
D0 D1 D2 D3
D3 D2 D1 D0
VD0<0: 7> [14]
VRAS0 [14]
VD2<0: 7> [14]
VRAS2 [14]
VD1<0: 7> [14]
VRAS1 [14]
VD3<0: 7> [14]
VRAS3 [14]
VWE [14]
VCAS [14]
SA<0: 14>
[4, 7, 11, 12-14, 17-19]
27256
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14
D0 D1 D2 D3 D4 D5 D6 D7
Vpp
OE
CE
U51
1 +5V
JS18B
JS18A
EGA BIOS
ROMD<0: 7> [14]
ROMOE [14]
ROMCS [14]
VIDEO MEMORY
EAT 715
Schneider
DRAWN BY: K. WINZEK
APPROVED:
TITLE: SCHEMATIC EURO AT
USED ON: EURO AT
SIZE A 3
51 513
REV 7
DATE: 01-18-90
SHEET: 15 of 24

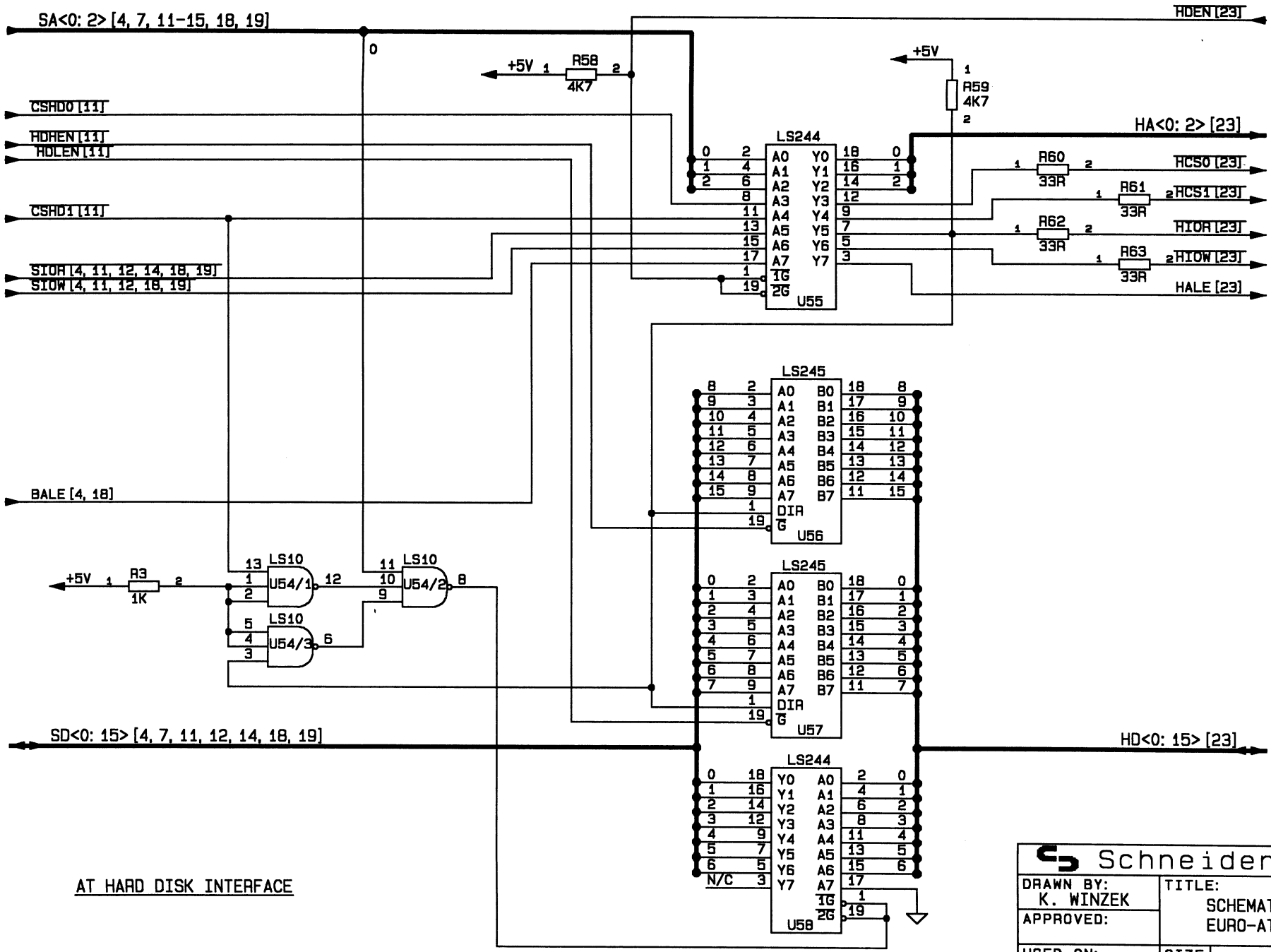
VIDEO INTERFACE

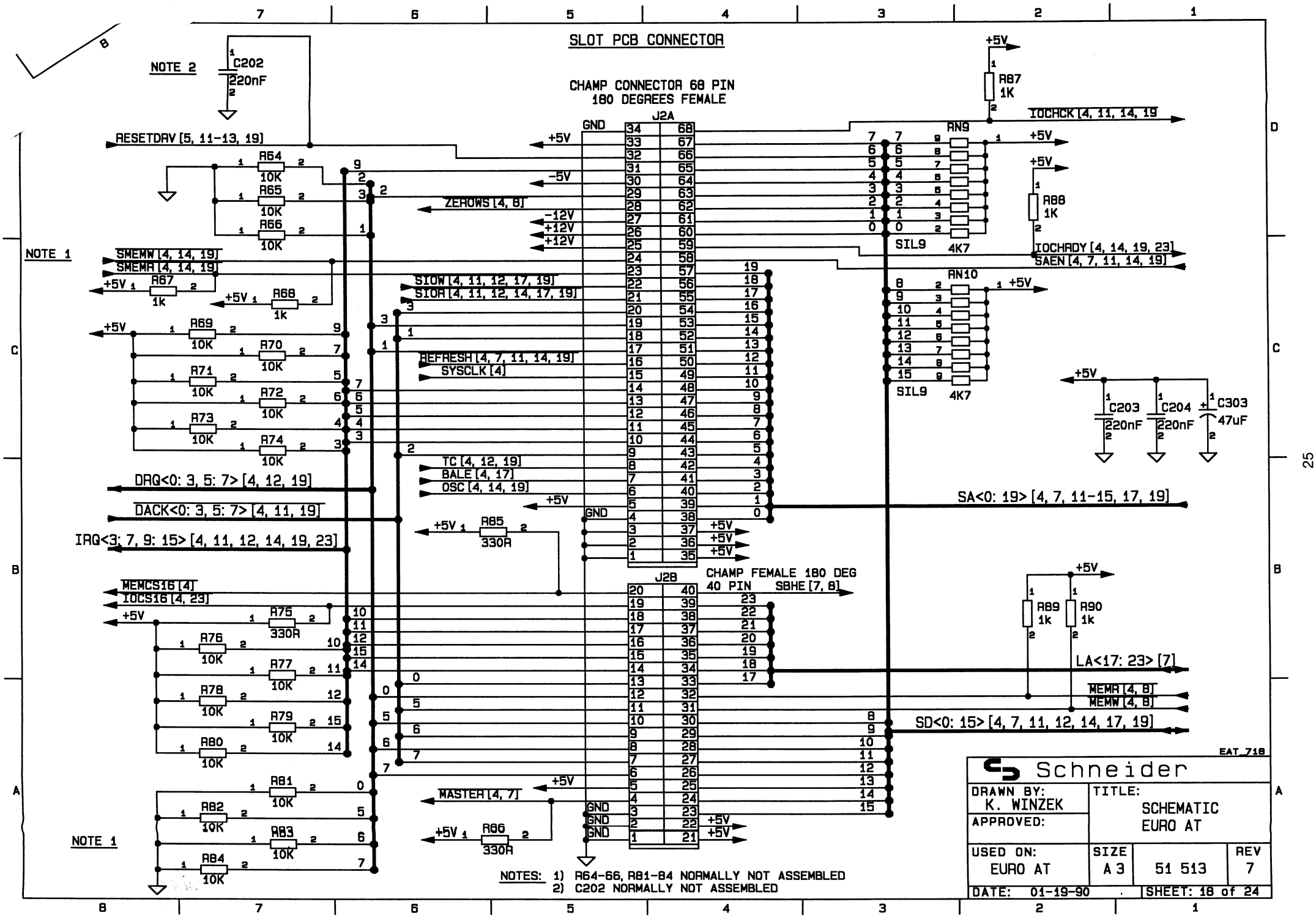


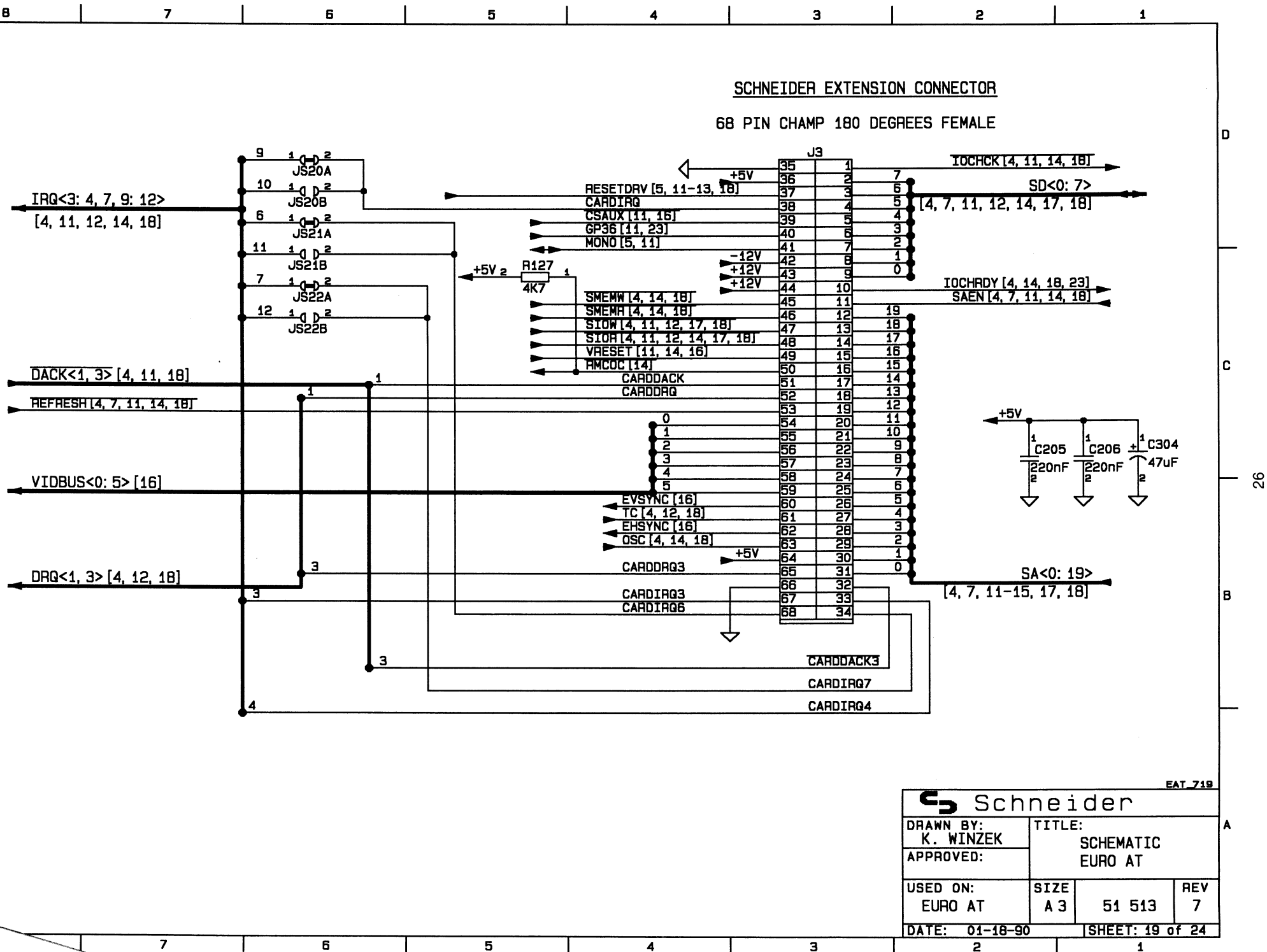
EAT_716

Schneider

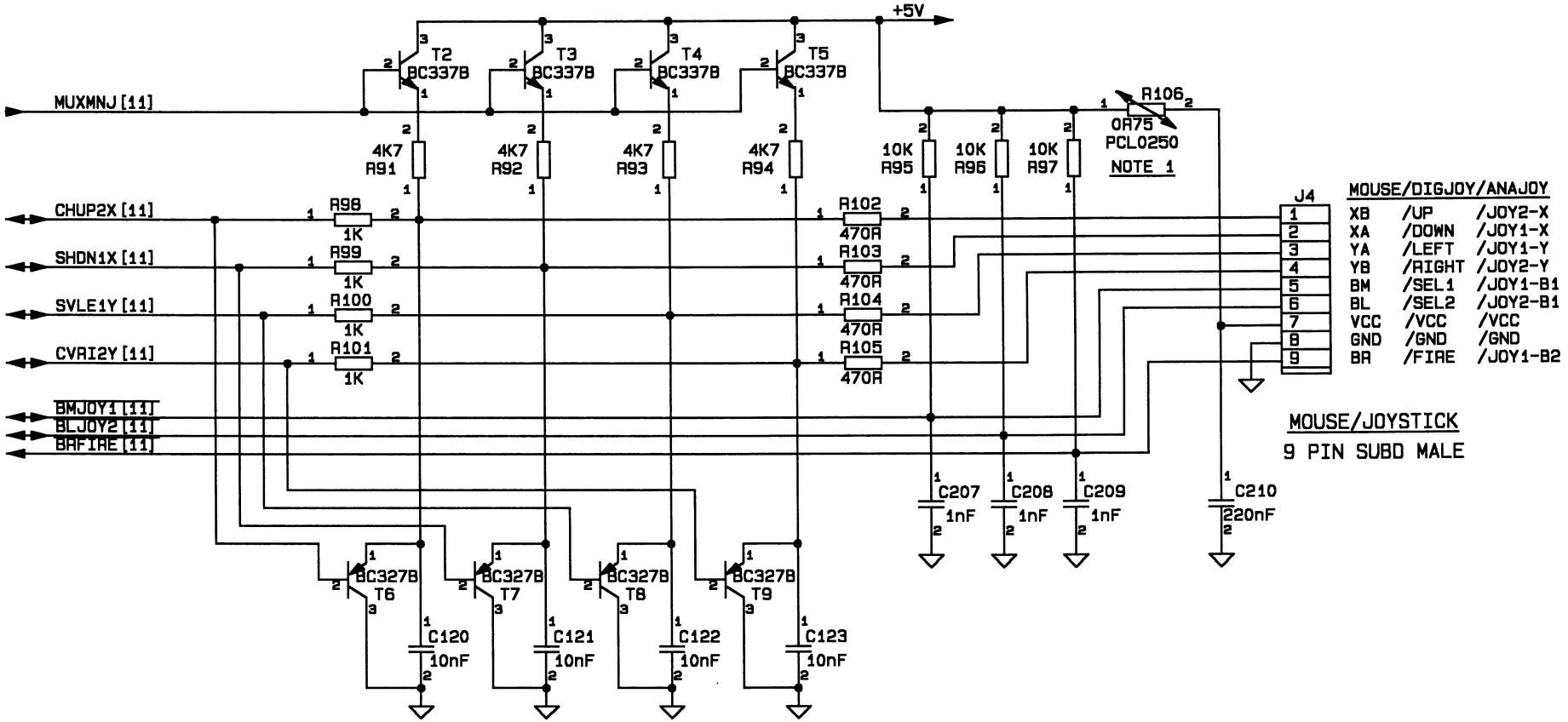
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A3	51 513	REV 7
DATE: 01-19-90	SHEET: 16 of 24		


SA<0: 2> [4, 7, 11-15, 18, 19]
HDEN [23]
+5V
R58
4K7
R59
4K7
CSHD0 [11]
HDREN [11]
HDLEN [11]
CSHD1 [11]
SIOR [4, 11, 12, 14, 18, 19]
SIOW [4, 11, 12, 18, 19]
LS244
U55
HA<0: 2> [23]
R60
33R
HCS0 [23]
R61
33R
HCS1 [23]
R62
33R
HIOR [23]
R63
33R
HIOW [23]
HALE [23]
LS245
U56
BALE [4, 18]
R3
1K
LS10
U54/1
U54/2
U54/3
LS245
U57
SD<0: 15> [4, 7, 11, 12, 14, 18, 19]
HD<0: 15> [23]
LS244
U58
AT HARD DISK INTERFACE
EAT_717
Schneider
DRAWN BY: K. WINZEK
TITLE: SCHEMATIC EURO-AT
APPROVED:
USED ON: EURO AT
SIZE A 3
51 513
REV 7
DATE: 01-18-90
SHEET: 17 of 24


SLOT PCB CONNECTOR
CHAMP CONNECTOR 68 PIN
180 DEGREES FEMALE
J2A
J2B
CHAMP FEMALE 180 DEG
40 PIN
NOTE 1
NOTE 2
C202
220nF
R64
10K
R65
10K
R66
10K
R67
1k
R68
1k
R69
10K
R70
10K
R71
10K
R72
10K
R73
10K
R74
10K
R75
330R
R76
10K
R77
10K
R78
10K
R79
10K
R80
10K
R81
10K
R82
10K
R83
10K
R84
10K
R85
330R
R86
330R
R87
1K
R88
1K
R89
1k
R90
1k
RN9
SIL9
4K7
RN10
SIL9
4K7
C203
220nF
C204
220nF
C303
47uF
RESETDRV [5, 11-13, 19]
ZEROWS [4, 8]
SMEMW [4, 14, 19]
SMEMR [4, 14, 19]
SIOW [4, 11, 12, 17, 19]
SIOR [4, 11, 12, 14, 17, 19]
REFRESH [4, 7, 11, 14, 19]
SYSCLK [4]
TC [4, 12, 19]
BALE [4, 17]
OSC [4, 14, 19]
DRQ<0: 3, 5: 7> [4, 12, 19]
DACK<0: 3, 5: 7> [4, 11, 19]
IRQ<3: 7, 9: 15> [4, 11, 12, 14, 19, 23]
MEMCS16 [4]
IOCS16 [4, 23]
MASTER [4, 7]
IOCHCK [4, 11, 14, 19]
IOCHRDY [4, 14, 19, 23]
SAEN [4, 7, 11, 14, 19]
SA<0: 19> [4, 7, 11-15, 17, 19]
SBHE [7, 8]
LA<17: 23> [7]
MEMR [4, 8]
MEMW [4, 8]
SD<0: 15> [4, 7, 11, 12, 14, 17, 19]
+5V
-5V
-12V
+12V
GND
NOTES: 1) R64-66, R81-84 NORMALLY NOT ASSEMBLED
2) C202 NORMALLY NOT ASSEMBLED
EAT 718
Schneider
DRAWN BY: K. WINZEK
APPROVED:
TITLE: SCHEMATIC EURO AT
USED ON: EURO AT
SIZE A 3
51 513
REV 7
DATE: 01-19-90
SHEET: 18 of 24
25


SCHNEIDER EXTENSION CONNECTOR
68 PIN CHAMP 180 DEGREES FEMALE
J3
JS20A
JS20B
JS21A
JS21B
JS22A
JS22B
IRQ<3: 4, 7, 9: 12>
[4, 11, 12, 14, 18]
DACK<1, 3> [4, 11, 18]
REFRESH [4, 7, 11, 14, 18]
VIDBUS<0: 5> [16]
DRQ<1, 3> [4, 12, 18]
R127
4K7
+5V
-12V
+12V
RESETDRV [5, 11-13, 18]
CARDIRQ
CSAUX [11, 16]
GP36 [11, 23]
MONO [5, 11]
SMEMW [4, 14, 18]
SMEMR [4, 14, 18]
SIOW [4, 11, 12, 17, 18]
SIOR [4, 11, 12, 14, 17, 18]
VRESET [11, 14, 16]
AMCOC [14]
CARDDACK
CARDDRQ
EVSYNC [16]
TC [4, 12, 18]
EHSYNC [16]
OSC [4, 14, 18]
CARDDRQ3
CARDIRQ3
CARDIRQ6
CARDDACK3
CARDIRQ7
CARDIRQ4
IOCHCK [4, 11, 14, 18]
SD<0: 7>
[4, 7, 11, 12, 14, 17, 18]
IOCHRDY [4, 14, 18, 23]
SAEN [4, 7, 11, 14, 18]
SA<0: 19>
[4, 7, 11-15, 17, 18]
C205
220nF
C206
220nF
C304
47uF
EAT_719
Schneider
DRAWN BY: K. WINZEK
APPROVED:
TITLE: SCHEMATIC EURO AT
USED ON: EURO AT
SIZE A3
51 513
REV 7
DATE: 01-18-90
SHEET: 19 of 24

JOYSTICK/MOUSE CONNECTOR



MOUSE/JOYSTICK
9 PIN SUBD MALE

NOTES: 1) R106 IS A PTC RESISTOR FOR CURRENT LIMITATION

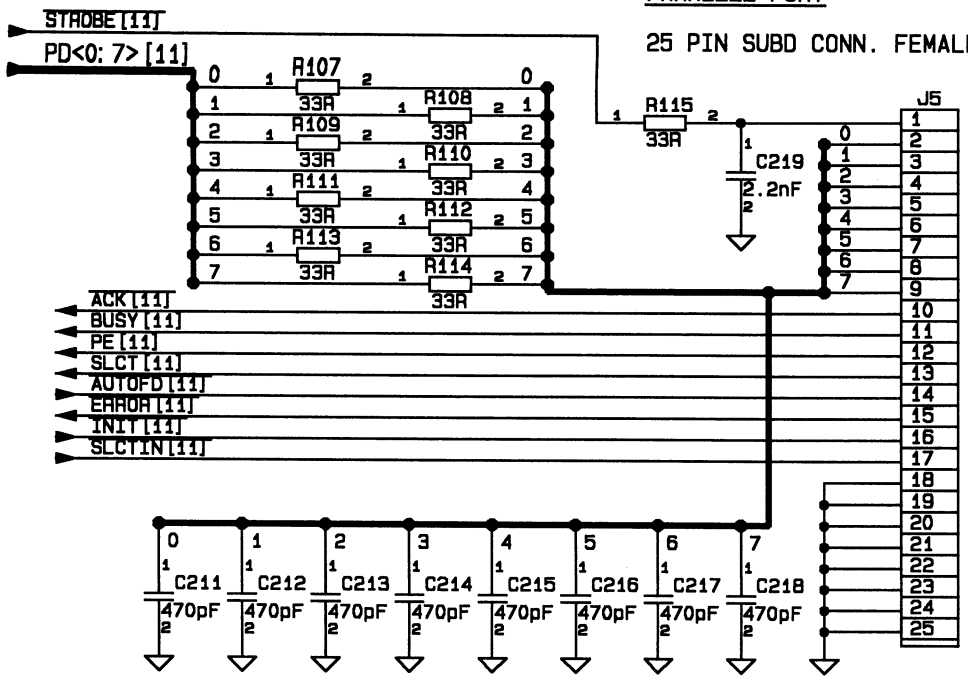
CONNECTORS I

EAT 720

Schneider			
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO-AT		
APPROVED:			
USED ON: EURO AT	SIZE A 3	51 513	REV 7
DATE: 01-18-90		SHEET: 20 of 24	

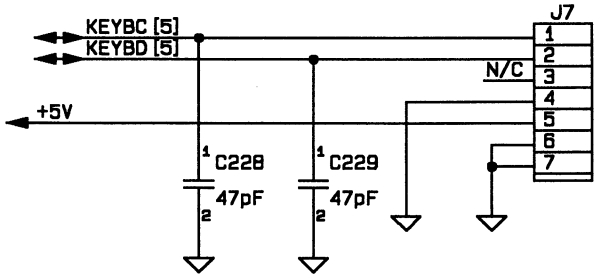
PARALLEL PORT

25 PIN SUBD CONN. FEMALE



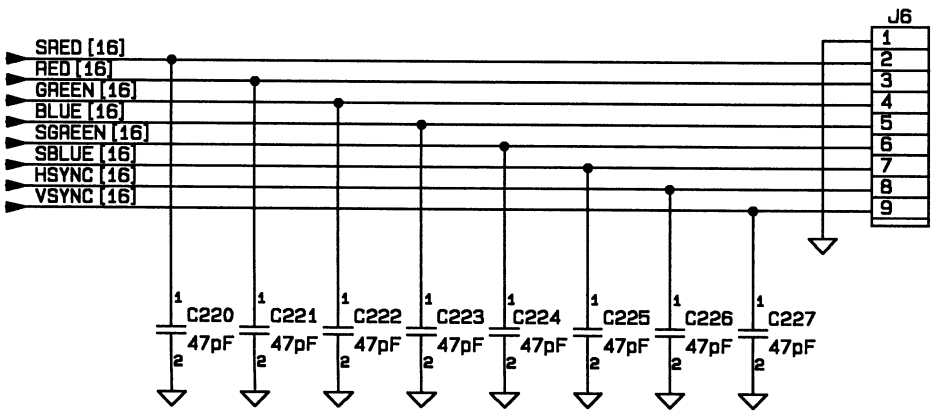
KEYBOARD CONNECTOR

5 PIN, 180 DEGREES
DIN- CONNECTOR, FEMALE,
PIN 6+7 IS SHIELD



VIDEO MONO/RGB

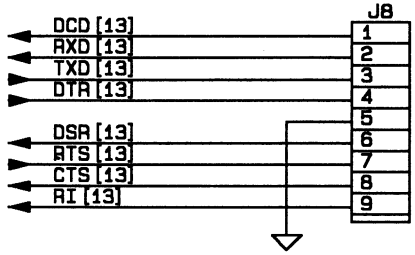
9 PIN SUBD CONN. FEMALE



MDA	CGA	EGA
GND	GND	GND
GND	GND	SEC.RED
-	RED	RED
-	GREEN	GREEN
-	BLUE	BLUE
INTENS.	INTENS.	SEC.GREEN
VIDEO	-	SEC.BLUE
H.SYNC	H.SYNC	H.SYNC
V.SYNC	V.SYNC	V.SYNC

SERIAL PORT

9 PIN SUBD CONN. MALE



CONNECTORS II

EAT_721

Schneider			
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A3	51 513	REV 7
DATE: 01-25-90		SHEET: 21 of 24	

FLOPPY EXTERN

25 PIN SUBD CONN. FEMALE

DRVSEL<1:4>[11]
MOON<1:4>[11]

J9

	INDEX[12,22]	1
3	MO3	2
2	DS2	3
3	DS3	4
2	MO2	5
	DIR[12,22]	6
	STEP[12,22]	7
	WRDATA[12,22]	8
	WRGATE[12,22]	9
	TRACK0[12,22]	10
	WRPRO[12,22]	11
	RDATA[12,22]	12
	SIDE1[12,22]	13
		14
	+5V	15
	N/C	16
	POWERON[6]	17
		18
		19
		20
		21
		22
		23
	DCNHG[12,22]	24
	RPM[11,22]	25

POWER CONNECTOR

B09P-VH

J11

+5V	1
+5V	2
+5V	3
GND	4
GND	5
GND	6
+12V	7
-12V	8
PWRGOOD	9

+5V — C305 10uF, C230 220nF
PWRGOOD[4,6,18,23]
+12V — C306 10uF, C231 220nF
-12V — C307 10uF, C232 220nF
-5V — 7905 U59, C233 220nF, C308 10uF, C234 220nF

FLOPPY INTERN

HEADER DUAL ROW 26 PIN/34PIN

J10

	N/C	2		1
	N/C	4		3
		6		5
	INDEX[12,22]	8	2	1	7
4	MO4	10	4	3	9
1	DS1	12	6	5	11
4	DS4	14	8	7	13
1	MO1	16	10	9	15
	DIR[12,22]	18	12	11	17
	STEP[12,22]	20	14	13	19
	WRDATA[12,22]	22	16	15	21
	WRGATE[12,22]	24	18	17	23
	TRACK0[12,22]	26	20	19	25
	WRPRO[12,22]	28	22	21	27
	RDATA[12,22]	30	24	23	29
	SIDE1[12,22]	32	26	25	31
		34			33

JS23 NOTE 2 — +5V
R116 OR
R125 OR
R126 OR
R131 OR
NOTE 1

DCNHG [12,22] — JS24
RPM[11,22] — JS25
NOTE 2

NOTE:
1) R116, R125, R126, R131 NORMALLY NOT ASSEMBLED
2) FOR USE WITH 26PIN FLOPPY CONNECTOR CLOSE JS23-25 AND OMIT R116, R125, R126 R131
FOR USE WITH 34PIN FLOPPY CONNECTOR OPEN JS23-25 AND INSERT R116, R125, R126 AND R131

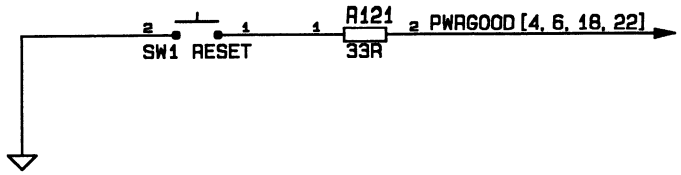
CONNECTORS III

EAT_722

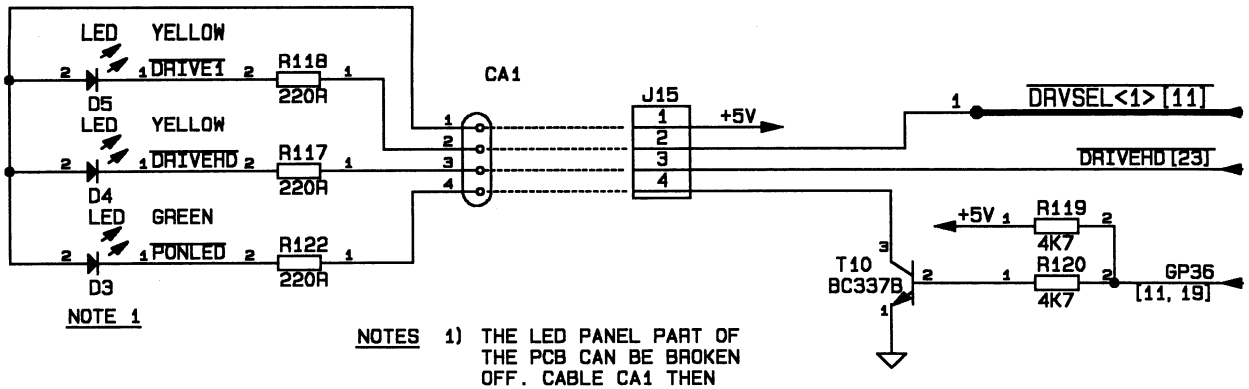
Schneider			
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A3	51 513	REV 7
DATE: 01-19-90	SHEET: 22 of 24		

CONNECTORS IV / LED PANEL / SPARE GATES

RESET



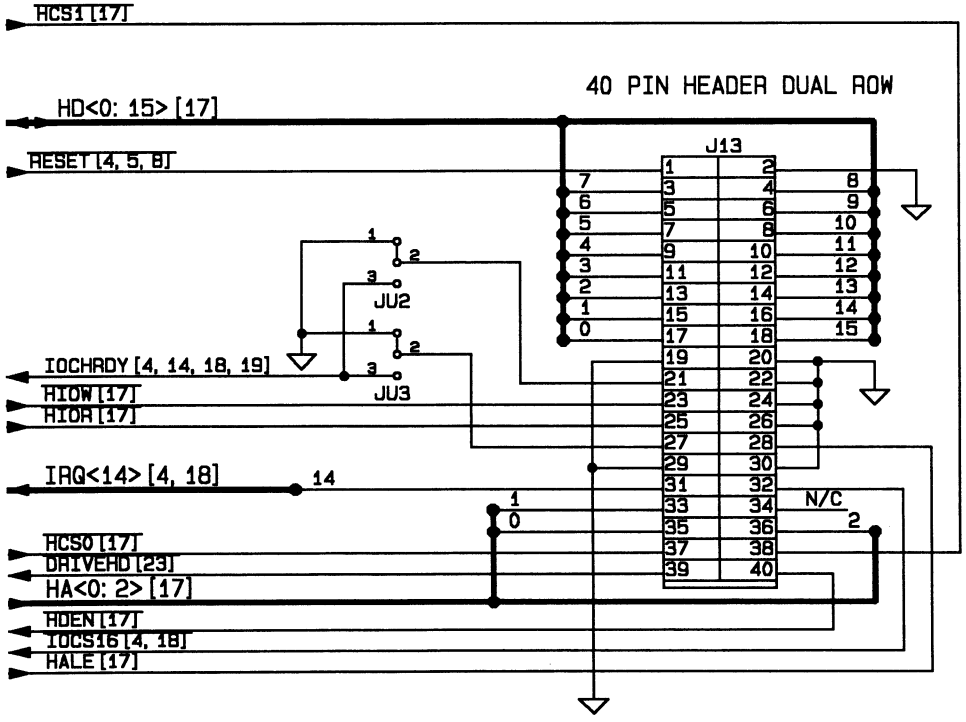
LED PANEL



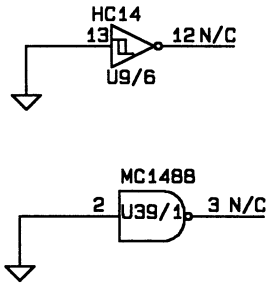
NOTE 1

NOTES 1) THE LED PANEL PART OF THE PCB CAN BE BROKEN OFF. CABLE CA1 THEN CONNECTS BOTH PARTS.

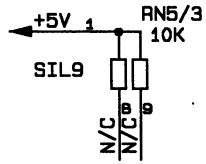
AT INTEGRATED HARD DISK DRIVE CONNECTOR



SPARE GATES

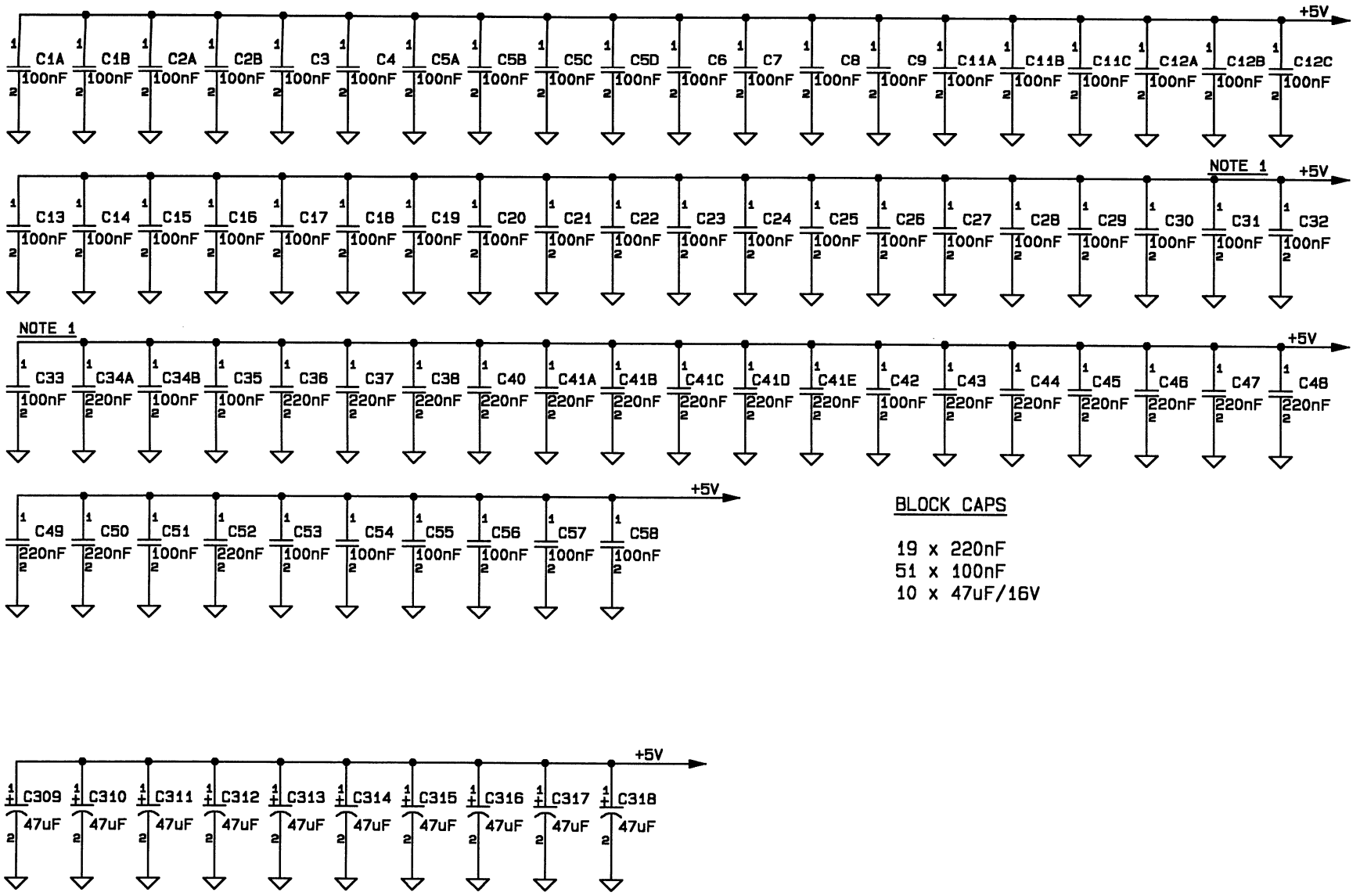


SPARE R-NETS



EAT_723

Schneider			
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A 3	51 513	REV 7
DATE: 01-25-90		SHEET: 23 of 24	



BLOCK CAPS

19 x 220nF
51 x 100nF
10 x 47uF/16V

NOTES: 1) C30..C33 NORMALLY NOT ASSEMBLED

EAT_724

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A3	51 513	REV 7
DATE: 01-19-90		SHEET: 24 of 24	

REVISIONS			
LTR	DESCRIPTION	DATE	APPROVED
0	FIRST DRAWING	07-31-89	
1	PREPRODUCTION RELEASE	11-23-89	K. WINZEK
2	NEW C207	01-12-90	K. WINZEK

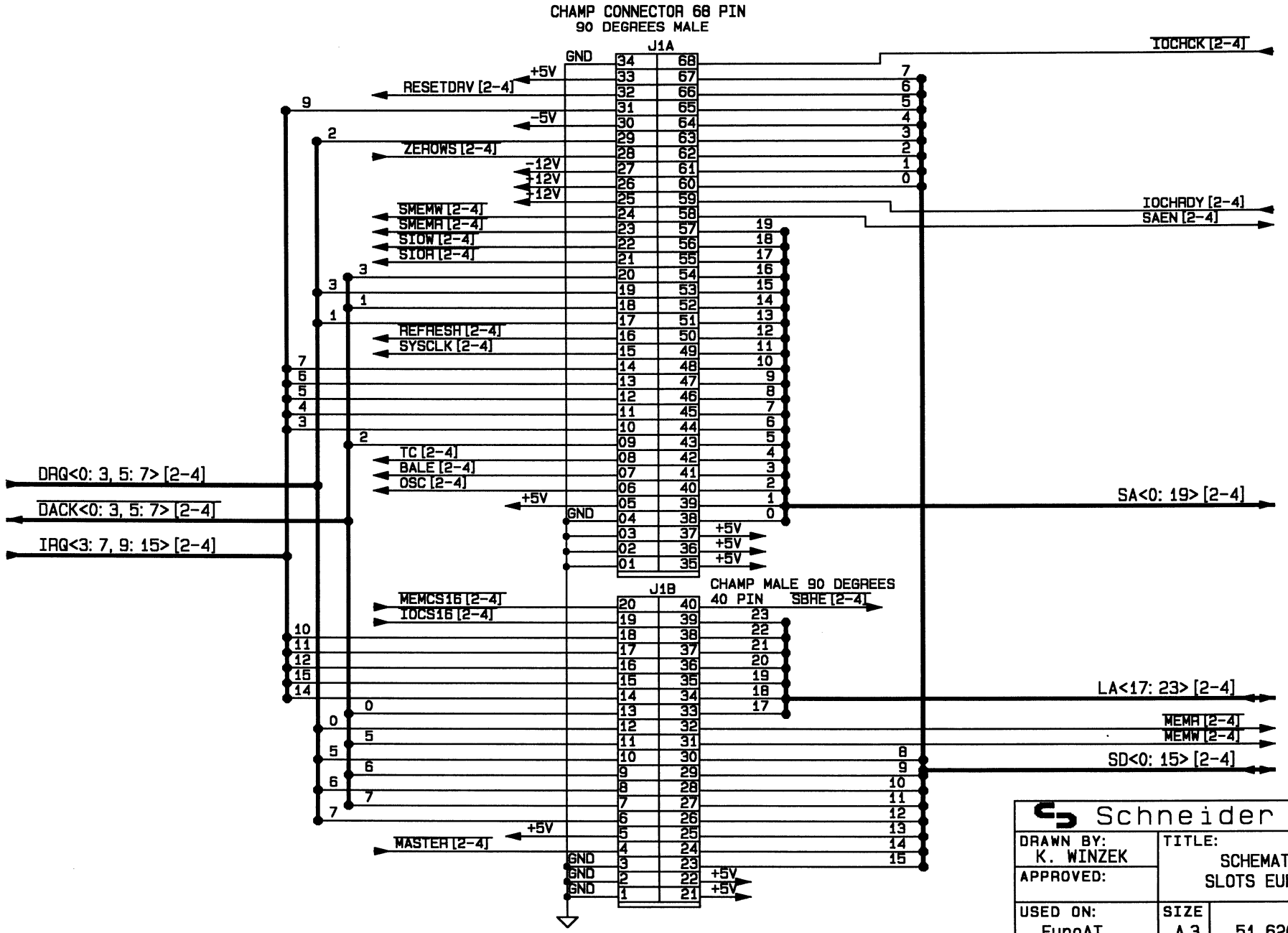
DRAWING FILES:	CONTENTS:
SLT_21	THIS SHEET
SLT_22	SLOT PCB CONNECTOR
SLT_23	SLOT I
SLT_24	SLOT II

SLT_21

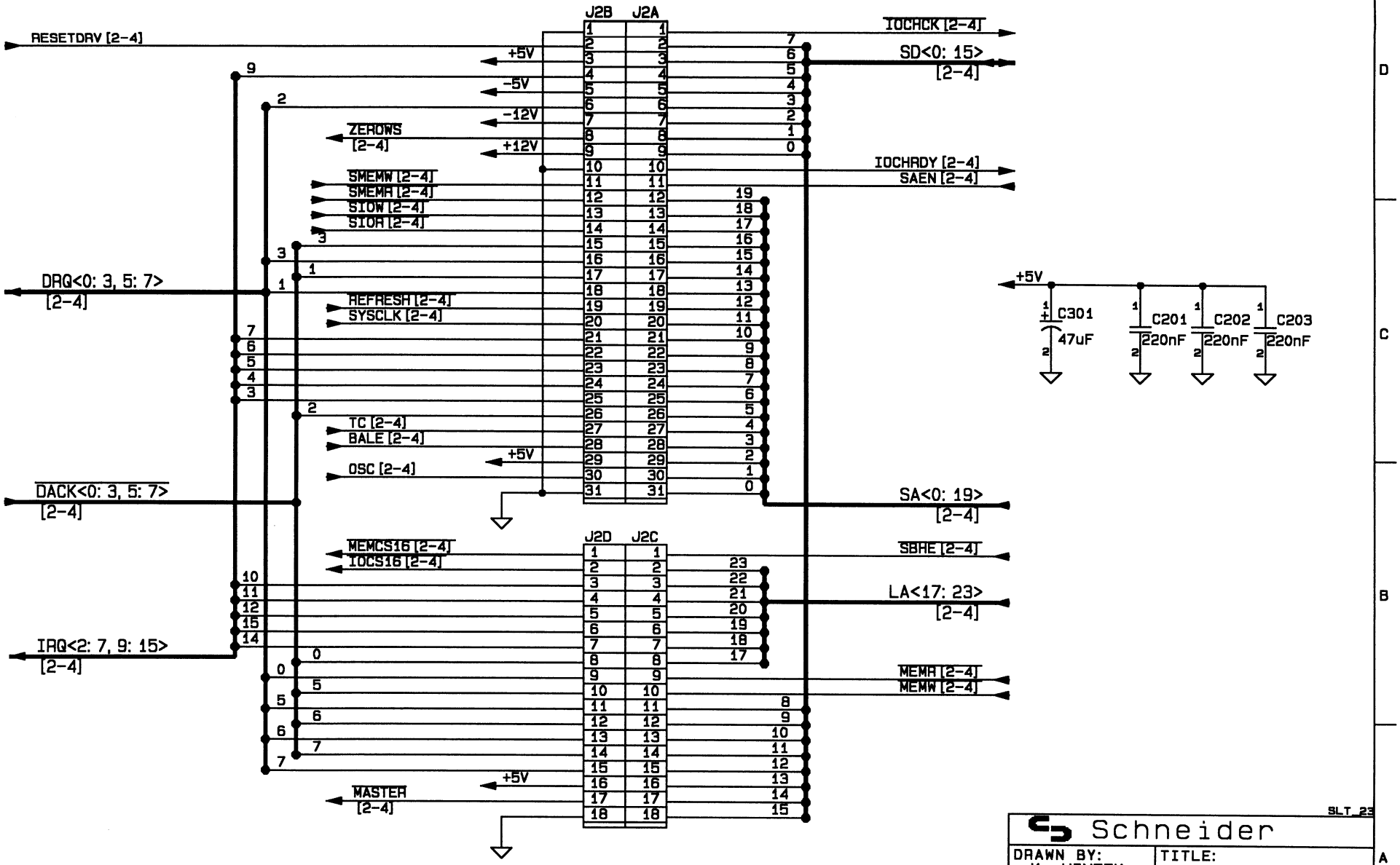
Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SLOTS EURO AT		
APPROVED:			
USED ON: EuroAT	SIZE A 3	51 620	REV 2
DATE: 01-29-90		SHEET: 1 of 4	

SLOT PCB CONNECTOR



Schneider			SLT_22
DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SLOTS EURO AT		
APPROVED:			
USED ON: EuroAT	SIZE A 3	51 620	REV 2
DATE: 01-29-90	SHEET: 2 of 4		



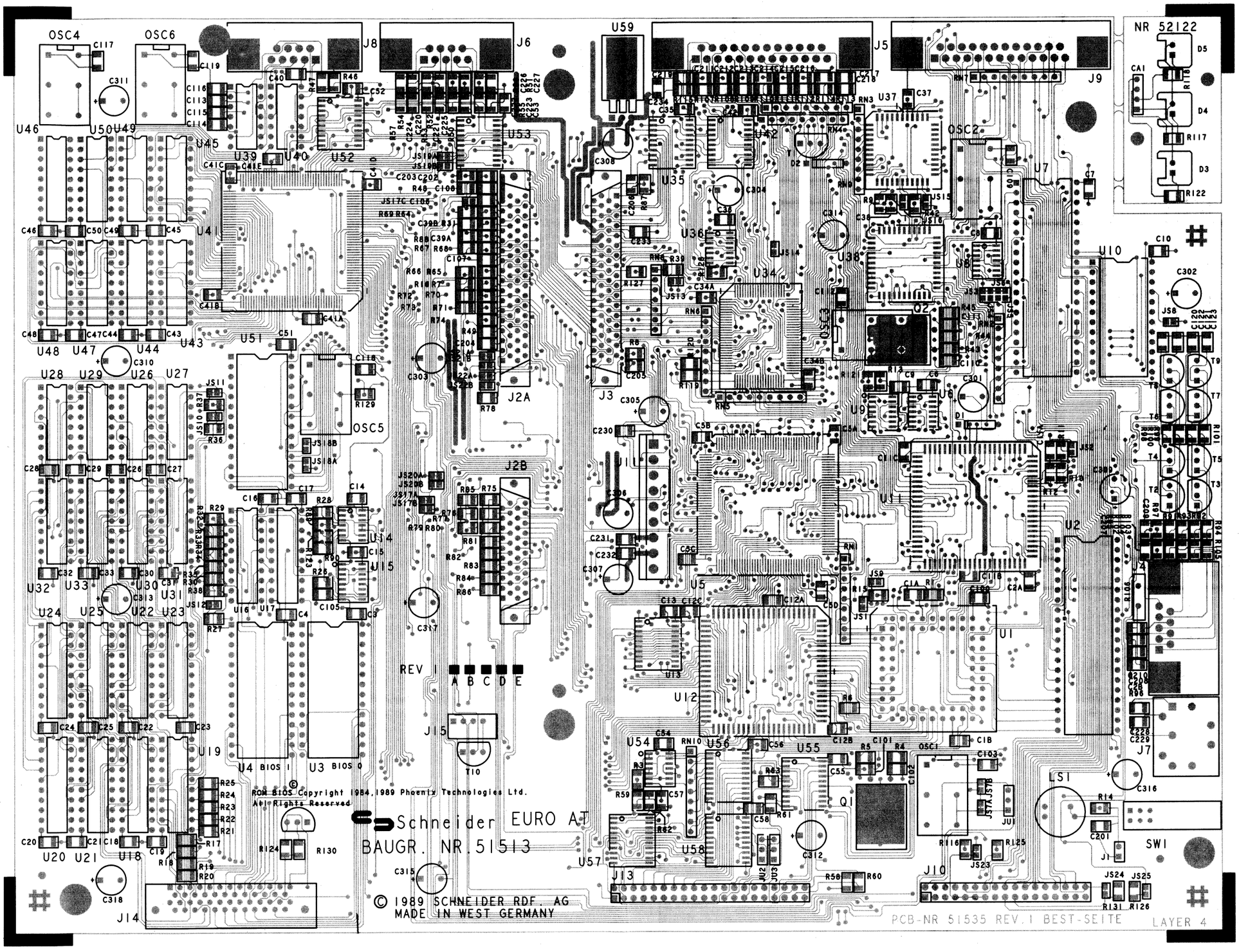
SLOT I

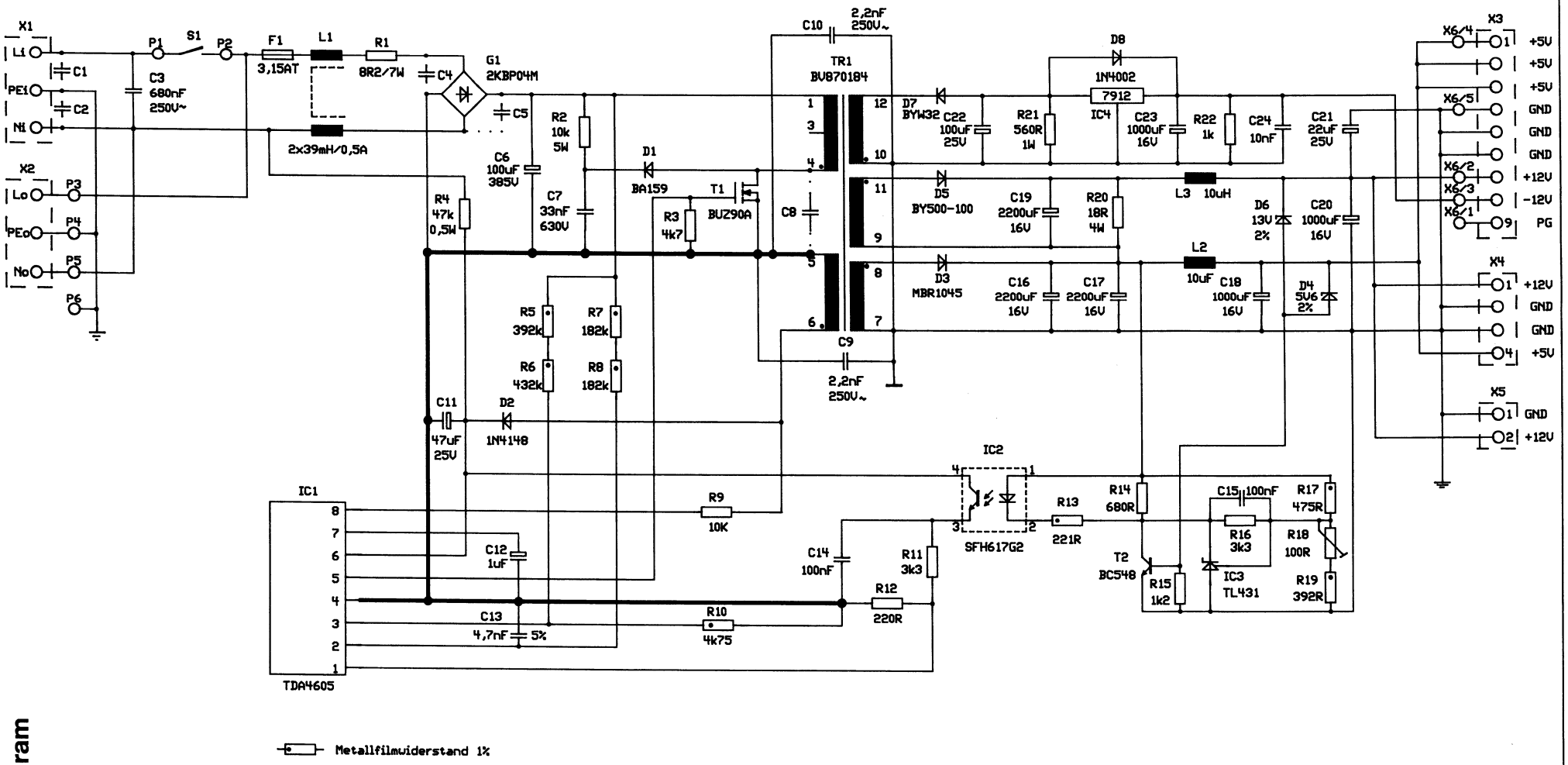
SLT_23

Schneider

DRAWN BY: K. WINZEK	TITLE: SCHEMATIC SLOTS EURO AT		
APPROVED:			
USED ON: EURO AT	SIZE A 3	51 620	REV 2
DATE: 01-29-90	SHEET: 3 of 4		

Main P.C.B.
Component side



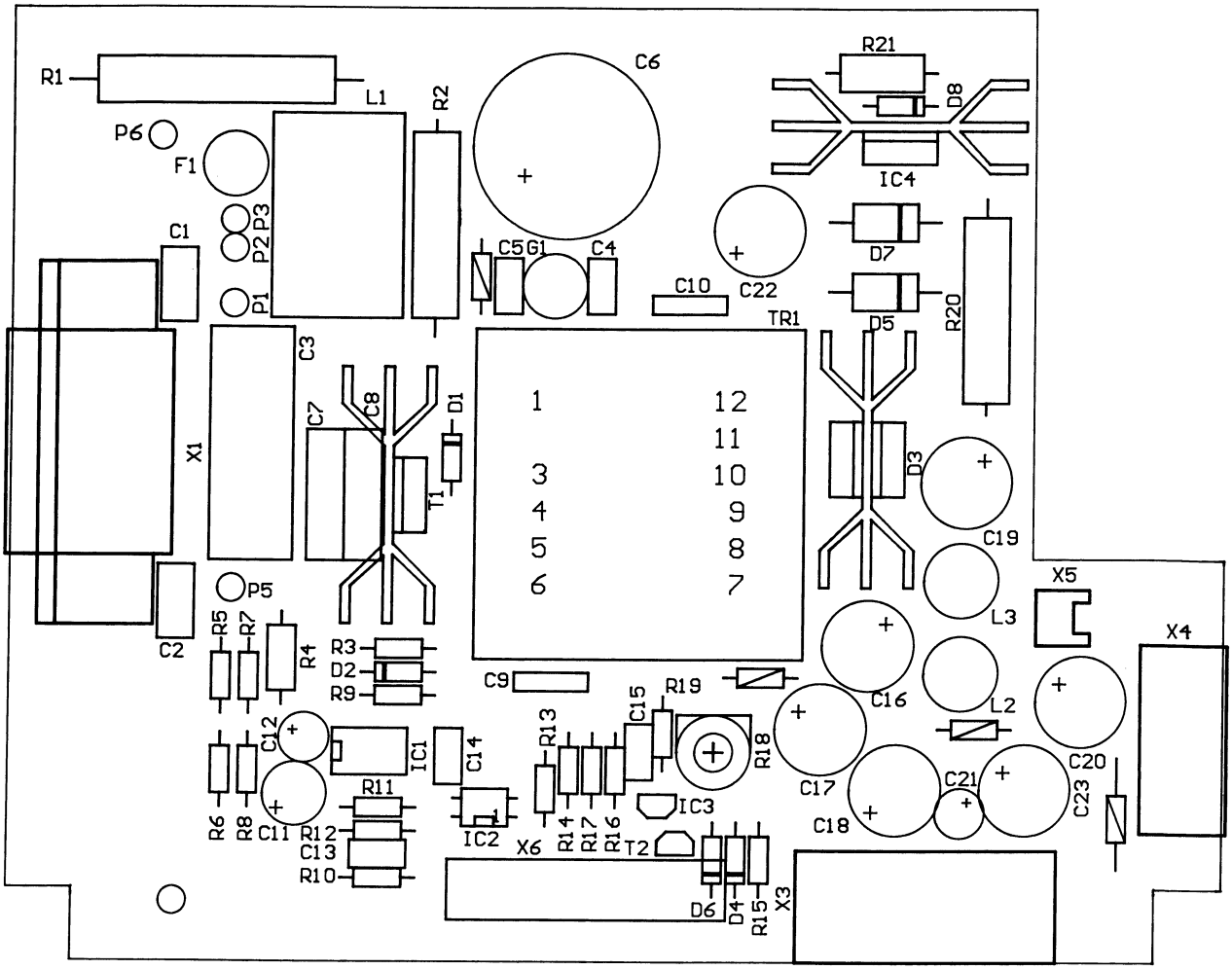


Schematic diagram
Power supply

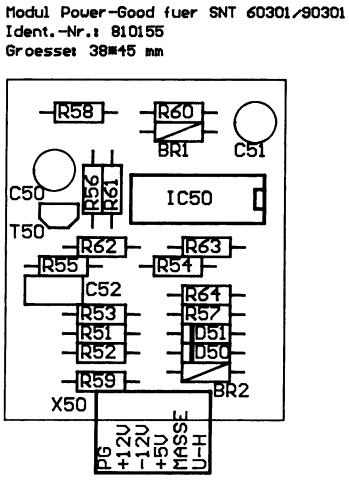
Platine 810154v2					Masstab	
					STROMLAUFPLAN	
				Datum / Name		
				Bearb. 28.11.89 Hierse	SNT60300v2	5V/7A 12V/2A(2,5A) -12V/0,3A
				Gepr.		
				Norm		
				Werner Blum - Elektronik D - 8907 Thannhausen	580031	BLATT 1 Bl.
Zust.	Aenderung	Datum	Name			

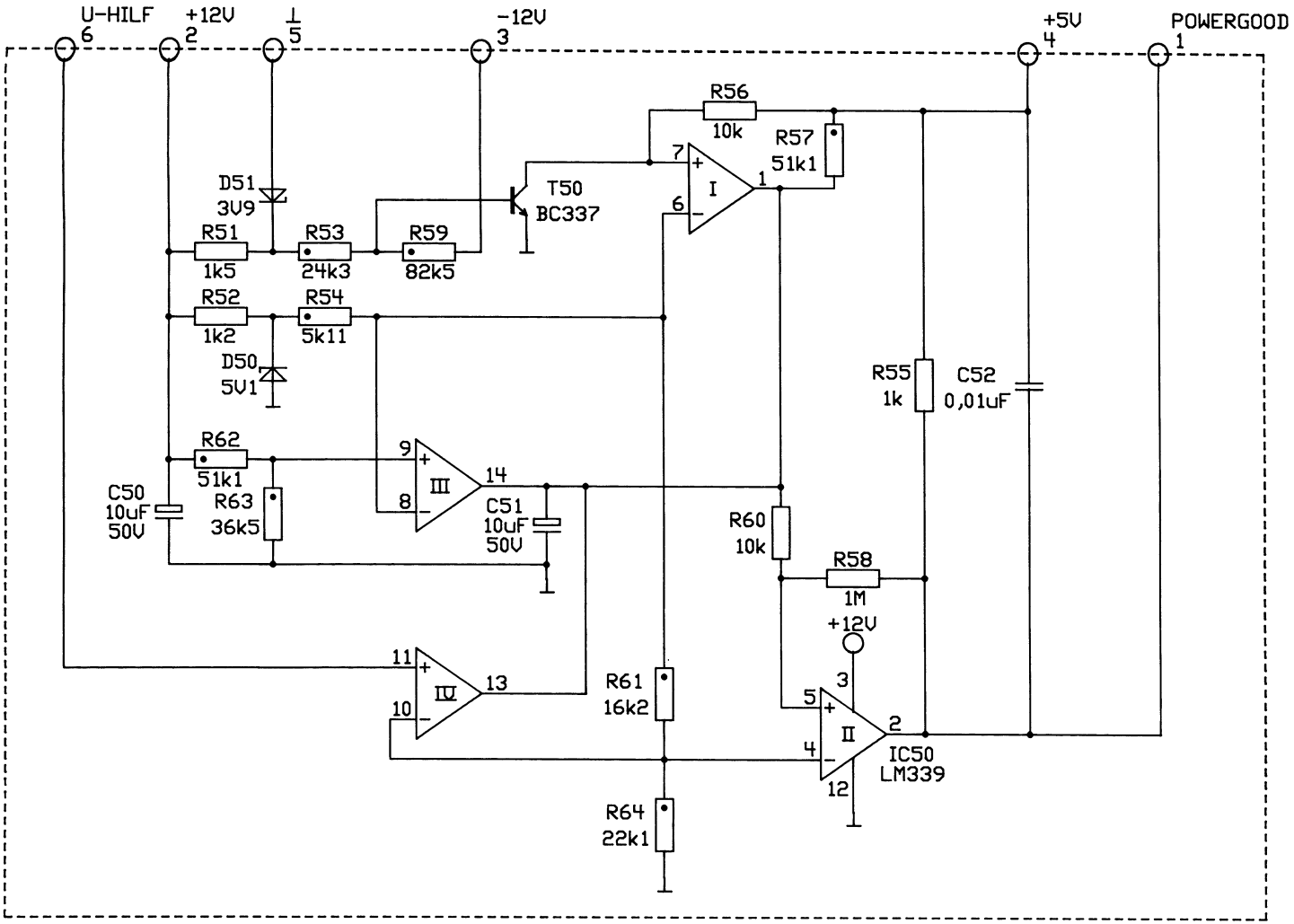
Power supply
Component side

SNT 60300/60301 Schneider
Ident.-Nr.: 810154v2
Groesse: 130*166 mm



Power good modul
Component side





Schematic diagram
Power good modul

Modul 810155						Masstab
						STROMLAUFPLAN
					Datum	Name
				Bearb.	01.12.89	Hafner
				Gepr.	9. 2. 89	
				Norm		
				Werner Blum - Elektronik		Power-Good-Modul fuer SNT60301 SNT90301
				D - 8907 Thannhausen		BLATT 1 BL.
Zust.	Aenderung	Datum	Name			

Ersatzteilliste für Platine Best. Euro AT
Parts List for P.C.B. Euro AT

Best.-Nr. Part.-No.	Bezeichnung	Description	Zeich.-Pos. Ref.-No.	Preisgruppe
50 509 00	IC 80826 CPU 12 MHz	IC 80826 CPU 12 MHz	U 1	F 4
50 444 00	IC EPROM 256K prog.	IC EPROM 256K prog.	U 3	C 9
50 445 00	IC EPROM 256K prog.	IC EPROM 256K prog.	U 4	C 9
50 776 00	IC GC 101A CPU Contr.	IC GC 101A CPU Contr.	U 5	F 5
51 586 00	IC 7406 S014	IC 7406 S014	U 6	A 9
50 243 00	IC 8042 prog.	IC 8042 prog.	U 7	C 3
51 594 00	IC 74 HC 74 S014	IC 74 HC 74 S014	U 8	A 8
51 592 00	IC 74 HC 14 S014	IC 74 HC 14 S014	U 9	A 9
50 177 00	IC DS 1287	IC DS 1287	U 10	D 4
50 046 00	IC GC 102A PLCC	IC GC 102A PLCC	U 11, 12	D 7
51 587 00	IC 74 ALS 245 S020	IC 74 ALS 245 S020	U 13	B 1
51 588 00	IC 74 F 00 S014	IC 74 F 00 S014	U 14	A 7
51 590 00	IC 74 F 175 S016	IC 74 F 175 S016	U 15	A 7
50 334 00	IC HAL 16L8B DIL RAS-PAL	IC HAL 16L8B DIL RAS-PAL	U 16	B 8
50 333 00	IC HAL 16L8B DIL CAS-PAL	IC HAL 16L8B DIL CAS-PAL	U 17	B 8
50 153 00	IC DRAM 256K×4	IC DRAM 256K×4	U 18-25	E 9
50 773 00	IC BIG JIM TC110 G008	IC BIG JIM TC110 G008	U 34	D 1
51 319 00	IC 74 LS 245 S020	IC 74 LS 245 S020	U 35	A 7
51 589 00	IC 74 F 126 S014	IC 74 F 126 S014	U 36	A 6
50 105 00	IC WD 37C65B-JM00	IC WD 37C65B-JM00	U 37	D 5
50 827 00	IC 16 C 450 PLCC 44	IC 16 C 450 PLCC 44	U 38	C 6
50 120 00	IC MC 1488	IC MC 1488	U 39	A 5
50 121 00	IC MC 1489	IC MC 1489	U 40	A 5
50 147 00	IC GC 201	IC GC 201	U 41	F 2
51 596 00	IC 74 LS 273 S020	IC 74 LS 273 S020	U 42	A 6
50 110 00	IC DRAM 64K×4 120nS	IC DRAM 64K×4 120nS	U 43-50	D 4
50 447 00	IC EPROM 256K prog.	IC EPROM 256K prog.	U 51	C 9
51 591 00	IC 74 F 244 S020	IC 74 F 244 S020	U 52	A 7
51 593 00	IC 74 HC 373 S020	IC 74 HC 373 S020	U 53	A 7
51 595 00	IC 74 LS 10 S014	IC 74 LS 10 S014	U 54	A 5
51 321 00	IC 74 LS 244 S020	IC 74 LS 244 S020	U 55, 58	B 0
51 329 00	IC 74 LS 245 S020	IC 74 LS 245 S020	U 56, 57	A 7
50 238 00	IC 7905 T0220	IC 7905 T0220	U 59	A 6

Ersatzteilliste für Platine Best. Euro AT
Parts List for P.C.B. Euro AT

Best.-Nr. Part.-No.	Bezeichnung	Description	Zeich.-Pos. Ref.-No.	Preisgruppe
50 358 00	Transistor BC 337 B	Transistor BC 337 B	T 1-5	A 6
51 042 00	Transistor BC 327 B	Transistor BC 327 B	T 6-9	A 2
50 358 00	Transistor BC 337 B	Transistor BC 337 B	T 10, 11	A 6
50 338 00	Diode 1 N 4148	Diode 1 N 4148	D 1, 2	A 2
50 325 00	Quarz 14,31818 MHz HC-18U	Quartz 14.31818 MHz HC-18U	Q 1	B 3
50 312 00	Quarz 1,8432 MHz HC-18U	Quartz 1.8432 MHz HC-18U	Q 2	B 5
50 313 00	Oszillator 16 MHz	Oscillator 16 MHz	OSC 2	C 3
50 337 00	Oszillator 34 MHz	Oscillator 34 MHz	OSC 4	C 0
50 315 00	Oszillator 24 MHz	Oscillator 24 MHz	OSC 5	C 0
50 314 00	Oszillator 19, 20 MHz	Oscillator 19, 20 MHz	OSC 6	C 0
50 316 00	R-Netzwerk 8×10K	R, Network 8×10K	RN 1, 5	A 3
50 319 00	R-Netzwerk 8×4K7	R, Network 8×4K7	RN 2, 4, 9, 10	A 3
50 317 00	R-Netzwerk 8×1K	R, Network 8×1K	RN 3, 7	A 3
51 050 00	R-Netzwerk 8×33K	R, Network 8×33K	RN 6	A 3
50 320 00	R-Netzwerk 6×680K	R, Network 6×680K	RN 8	A 2
50 321 00	PTC PCL 0250,0	PTC PCL 0250.0	R 106	B 0
51 717 00	Resettaste	Pushbutton, reset	SW 1	A 9
50 332 00	Piepser	Buzzer	LS 1	A 8
51 469 00	LED-Kabel 4pol.	Cabel, LED 4-pin	CA 1	A 9
51 520 00	Steckverbindung 40pol.	Socket 40-pin	J 2 B	B 2
51 521 00	Steckverbindung 68pol.	Socket 68-pin	J 2 A, J 3	B 4
51 385 00	Buchse SUB-D 9pol.	Socket SUB-D 9-pin	J 4	A 9
50 133 00	Buchse SUB-D 25pol.	Socket SUB-D 25-pin	J 5	B 2
50 132 00	Buchse SUB-D 9pol.	Socket SUB-D 9-pin	J 6	B 0
51 140 00	Buchse Dioden 5pol.	Socket 5-pin	J 7	A 9
50 131 00	Buchse SUB-D 9pol.	Socket SUB-D 9-pin	J 8	A 9
50 133 00	Buchse SUB-D 25pol.	Socket SUB-D 25-pin	J 9	B 2
51 569 00	Stiftleiste RM 26pol.	Socket RM 26-pin	J 10	A 7
51 431 00	Stiftleiste 9pol.	Socket 9-pin	J 11	A 5
51 085 00	Stiftleiste 40pol.	Socket 40-pin	J 13	A 7
51 616 00	Steckverbindung Leiterplatine	Socket P.C.B.	J 15	A 5

CAUTION:

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

Ref.: IEC/74 (Central Office) 104.

Error Code Table for AT 286

The "DIAGNP OUTPUT" codes are placed at the diagnostic status port to indicate tests in progress and failed tests to someone with hardware which can detect the output. If the FAILBEEP option is selected, the "BEEP CODES" are announced on the speaker if and only if a fatal failure is detected. For instance, "2-1-4" (a burst of two beeps, a single beep, a burst of four beeps) indicates a failure of bit 3 in the first 64K of RAM. Both set of codes are only used prior to screen initialization and screen retrace verification.

Once the screen is believed operable, any diagnostic reporting is via screen messages, except if MANLOOP EQU TRUE and the jumpers say to loop on POST. In this case, it is assumed that no video adapter is attached and some additional errors will be reported via DIAGNP and the speaker.

```
DIAGNP  BEEP          DESCRIPTION OF
OUTPUT  CODES        TEST OR FAILURE
  |       |                  |
01h ;         80286 register test in-progress
02h ; 1-1-3   CMOS write/read test in-progress or failure
03h ; 1-1-4   BIOS ROM checksum in-progress or failure
04h ; 1-2-1   Programmable Interval Timer test in-progress or failure
05h ; 1-2-2   DMA initialization in-progress or failure
06h ; 1-2-3   DMA page register write/read test in-progress or fail
07h ; 1-2-4   JIM port address offset determination in-progress or not found
08h ; 1-3-1   RAM refresh verification in-progress or failure
09h ;         1st 64K RAM test in-progress
0Ah ; 1-3-3   1st 64K RAM chip or data line failure - multi-bit
0Bh ; 1-3-4   1st 64K RAM odd/even logic failure
0Ch ; 1-4-1   1st 64K RAM address line failure
0Dh ; 1-4-2   1st 64K RAM parity test in_progress or failure
0Eh ; 1-4-3   invalid PBC ID                                    ;V2.00
10h ; 2-1-1   1st 64K RAM chip or data line failure - bit 0
11h ; 2-1-2   1st 64K RAM chip or data line failure - bit 1
12h ; 2-1-3   1st 64K RAM chip or data line failure - bit 2
13h ; 2-1-4   1st 64K RAM chip or data line failure - bit 3
14h ; 2-2-1   1st 64K RAM chip or data line failure - bit 4
15h ; 2-2-2   1st 64K RAM chip or data line failure - bit 5
16h ; 2-2-3   1st 64K RAM chip or data line failure - bit 6
17h ; 2-2-4   1st 64K RAM chip or data line failure - bit 7
18h ; 2-3-1   1st 64K RAM chip or data line failure - bit 8
19h ; 2-3-2   1st 64K RAM chip or data line failure - bit 9
1Ah ; 2-3-3   1st 64K RAM chip or data line failure - bit A
1Bh ; 2-3-4   1st 64K RAM chip or data line failure - bit B
1Ch ; 2-4-1   1st 64K RAM chip or data line failure - bit C
1Dh ; 2-4-2   1st 64K RAM chip or data line failure - bit D
1Eh ; 2-4-3   1st 64K RAM chip or data line failure - bit E
1Fh ; 2-4-4   1st 64K RAM chip or data line failure - bit F

20h ; 3-1-1   slave DMA register test in-progress or failure
21h ; 3-1-2   master DMA register test in-progress or failure
22h ; 3-1-3   master interrupt mask register test in-progress or fail
23h ; 3-1-4   slave interrupt mask register test in-progress or fail
25h ;         interrupt vector loading in-progress
27h ; 3-2-4   keyboard controller test in-progress or failure
28h ;         CMOS power-fail and checksum checks in-progress
29h ;         CMOS config info validation in-progress

2Ah ; 3-3-3   monitor type determination in-progress or failure
2Bh ; 3-3-4   screen memory test in-progress or failure
2Ch ; 3-4-1   screen initialization in-progress or failure
2Dh ; 3-4-2   screen retrace tests in-progress or failure
2Eh ;         search for video ROM in-progress
30h ;         screen believed operable:
```

```
30h ;         screen believed running w/ video ROM
31h ;         monochromatic screen believed operable
32h ;         40-column color screen believed operable
33h ;         80-column color screen believed operable

The following codes are reported via DIAGNP and the speaker only if
MANLOOP EQU TRUE and the "manufacturing jumper" indicates loop on POST.
Otherwise, these errors are reported via the screen and POST continues.
Use of the manufacturing jumper requires working correctly configured CMOS.
34h ; 4-2-1  timer tick interrupt test in_progress or failure
35h ; 4-2-2  shutdown test in_progress or failure
36h ; 4-2-3  gate A20 failure
37h ; 4-2-4  unexpected interrupt in protected mode
38h ; 4-3-1  RAM test in_progress or failure above address 0FFFFh
3Ah ; 4-3-3  Interval timer channel 2 test in_progress or failure
3Bh ; 4-3-4  Time-Of-Day clock test in_progress or failure
3Ch ; 4-4-1  Serial port test test in_progress or failure
3Dh ; 4-4-2  Parallel port test test in_progress or failure
3Eh ; 4-4-3  Math Coprocessor test in_progress or failure
```